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ADDRESS ALL COMMUNICATIONS TO
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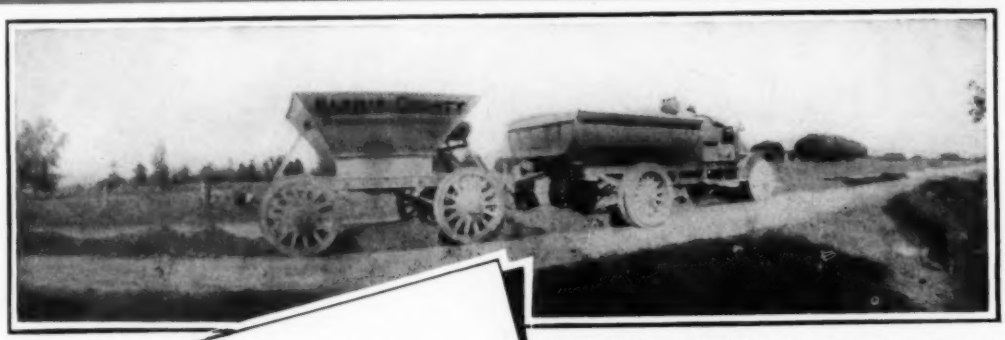
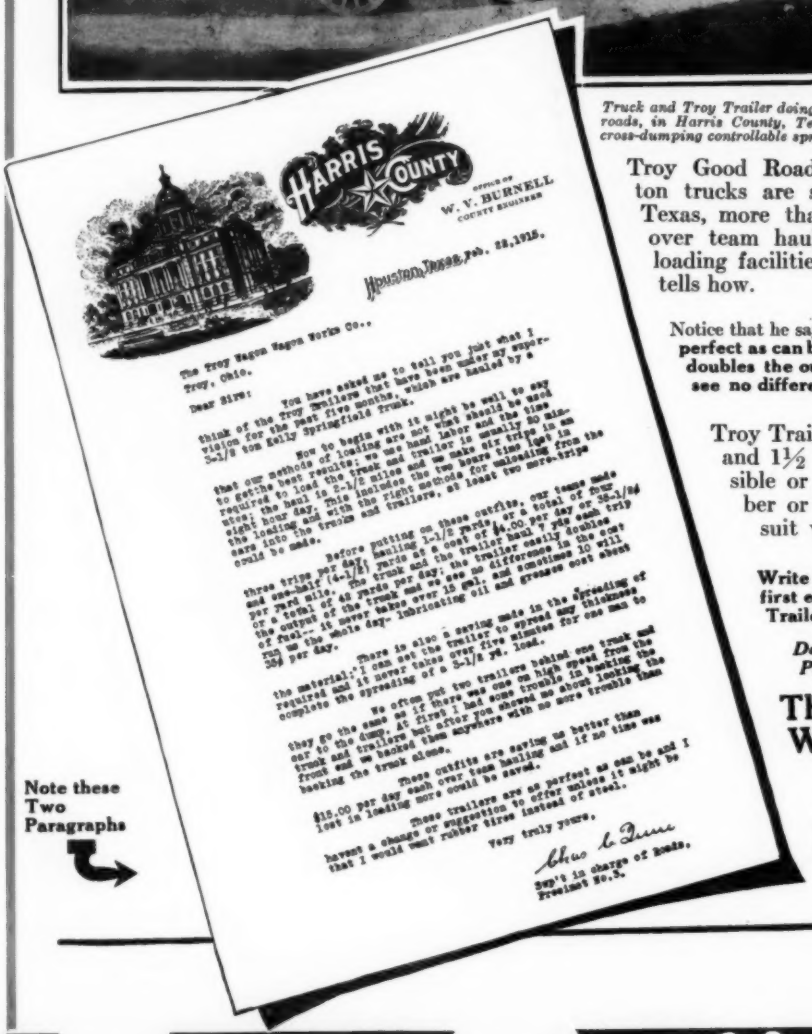


Truck and Troy Trailer doing real work for the cause of good roads, in Harris County, Texas. Trailer is equipped with cross-dumping controllable spreading doors.



HARRIS COUNTY

OFFICE OF
W. V. BURNELL
COUNTY ENGINEER

Houston, Texas, Feb. 22, 1915.

The Troy Wagon Works Co.,
Troy, Ohio.

Dear Sirs:

You have asked me to tell you just what I think of the Troy Trailers that have been under my supervision for the past five months, which are hauled by a 3-1/2 ton Kelly Springfield truck.

Now to begin with it might be well to say that our methods of loading are not what should be used to get the best results; we are hand labor and the time required to load the truck and trailer is usually 30 minutes; the haul is 2-1/2 miles and the time consumed on the road is 1 hour and 15 minutes; we make six trips in an eight hour day. This includes the two hours dinner hour. The loading and with the right methods for unloading from the cars into the trucks and trailers, at least two more trips could be made.

Before putting on these outfits, our teams made three trips per day, hauling 1-1/2 yards, or a total of four and one-half (4-1/2) yards per day; or a cost of $4.00 per day or $0.89 per yard mile. 45 yards per day; the truck and the trailer easily doubled the output of the truck and we see no difference in the cost of fuel;- it never takes over 15 gal. and sometimes 10 will run us the whole day- lubricating oil and grease cost about 30¢ per day.

There is also a saving made in the spreading of the material; I can set the trailer to spread any thickness required and it never takes over five minutes for one man to complete the spreading of a 3-1/2 yd. load.

We often put two trailers behind our truck and they go the same as if there was one on high speed from the car to the dump. At first I had some trouble in backing the trailers but after you showed me about locking the front and me hooked them anywhere with no more trouble than backing the truck alone.

These outfits are saving us better than $15.00 per day each over team hauling and if no time was lost in loading more could be saved.

These trailers are as perfect as can be and I haven't a change or suggestion to offer unless it might be that I would want rubber tires instead of steel.

Very truly yours,

Geo. L. Dunn
Gen'l in charge of Roads.
Precinct No. 3.

Note these Two Paragraphs

Troy Good Road Trailers behind 3½ ton trucks are saving Harris County, Texas, more than $15.00 a day each over team hauling in spite of poor loading facilities. Mr. Quinn's letter tells how.

Notice that he says: **"These Trailers are as perfect as can be"** and **"The Trailer easily doubles the output of the truck and we see no difference in the cost of fuel."**

Troy Trailers are 5 ton, 2½ ton and 1½ ton capacity. Reversible or non-reversible. Rubber or steel tires. Bodies to suit various needs.

Write for Booklet No. 4 EE, the first ever published on the use of Trailers.

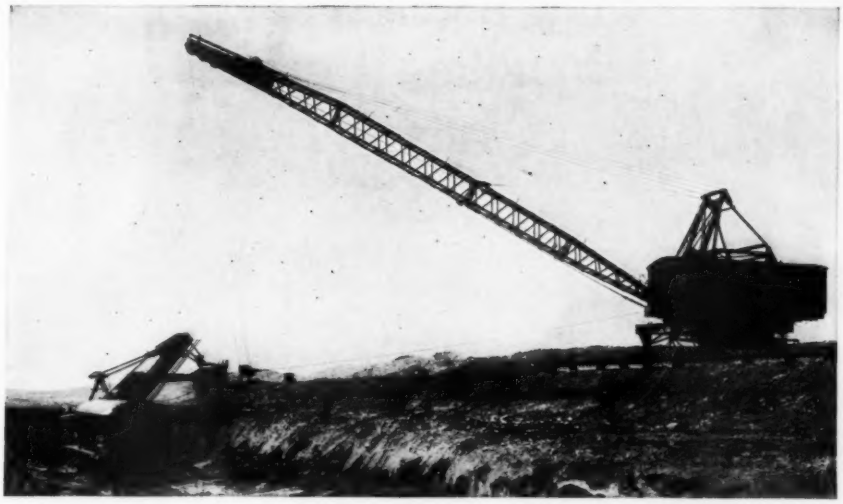
Don't Pile it,
Pull it—in a TROY.

The Troy Wagon Works Company

Troy, Miami County, Ohio

New York, 50 Church Street
Philadelphia, 702 Abbott Bldg.
Detroit, 319 Hammond Bldg.
London, England, 49 Pall Mall
Washington, D. C., 505 Riggs Bldg.

Troy Trailers



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In all kinds of work where electric power is available, electric shovels have proven their advantages over steam shovels. Consider what these advantages are:

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Electric Shovels are cheaper to operate than steam shovels.

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When the shovel stops the expense stops whether for a moment, an hour or a night.

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No coal to be handled. No water to be brought. No water pipes to be laid. No danger from freezing on a cold night.

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Any man who can operate a steam engine can operate the electric motors. Westinghouse motors are easier to handle than steam engines.

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Westinghouse motors for shovels are extremely rugged and your repair costs will be much lower than with a steam operated shovel.

More than 125 electric shovels with Westinghouse electric motors are in successful operation today. Send for D. L. 3710.

Westinghouse Electric & Manufacturing Company

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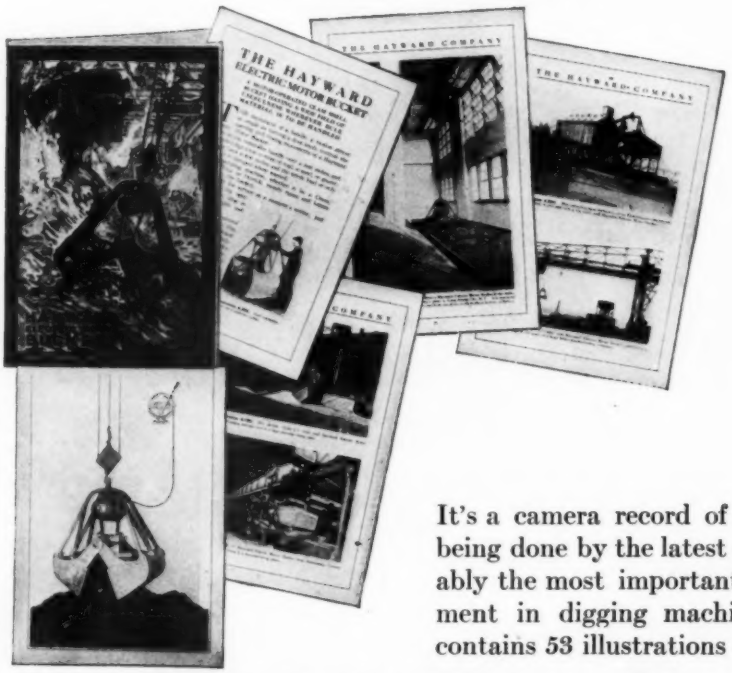
This Book May Solve Your Digging and Rehandling Problem



It's a camera record of the work being done by the latest and probably the most important development in digging machinery. It contains 53 illustrations of the

Hayward Electric Motor Bucket

and shows it operating under the widest variety of conditions and handling all classes of materials.

A self-contained, motor-operated unit.
Digs as much or as little of its rated capacity as desired.
Discharges its load gradually.
Operated from any type of hoisting machine.
Hang it on the Hook; plug the conductor cable and start digging.

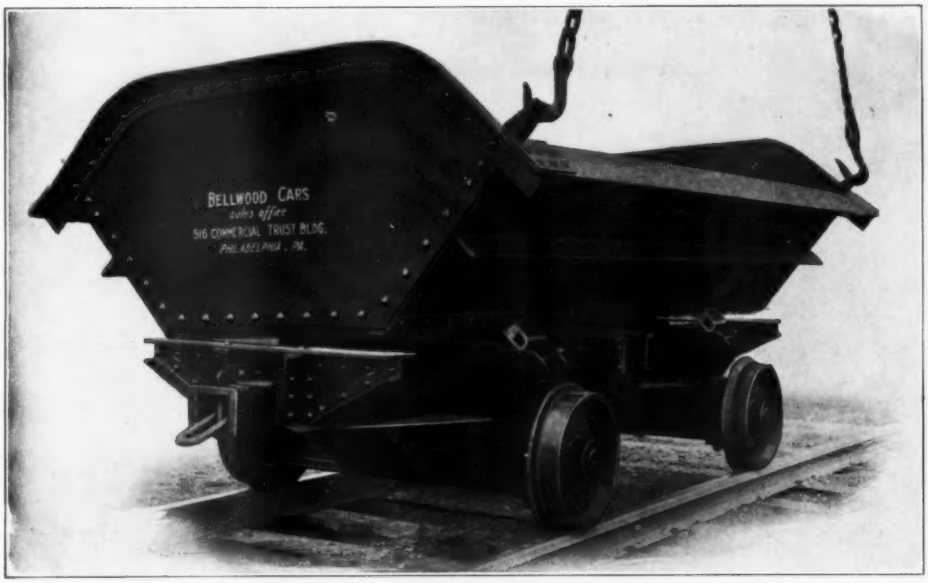
This book is free to any Engineer or Contractor writing for it.

THE HAYWARD COMPANY

Builders of Digging Machinery

50 Church St. **NEW YORK, U. S. A.**

YOU CAN'T DERAIL THIS ALL METAL QUARRY CAR



One firm has used ten of these ***Bellwood All Metal Articulated Truck Quarry Cars*** for over a year, and they have not had a single derailment.

That means they have increased their production and cut their costs, for every derailment means a loss of time and money. This firm moreover tells us frankly that they have tried to derail these Bellwood Quarry Cars—they have even put obstacles on the track, but they can't derail one of them.

They can't derail them because every one of these BELLWOOD ALL METAL ARTICULATED TRUCK QUARRY CARS is constructed with that articulating joint which insures an equal distribution of the load on all four wheels at all times.

Another Important Feature: The dumping pivots are mounted in pockets directly over the axle bearings. The axle, therefore, entirely absorbs the shock from the dumping of load, and there is no tortional strain to the truck frame.

We build these cars in types, capacities, gauges and weights to meet your individual requirements.

We also build Contractor's Dump Cars, 4 to 10 cubic yard capacity, with four wheel Articulated Trucks; Air Dump Cars, 20 cubic yards with M. C. B. and I. C. C. Equipment; Rotary Dump Cars; Concrete Dump Cars, etc.

LET US HELP YOU

Whatever your car problems are, let us help you. Tell us your needs, and let us suggest the best equipment for satisfying those needs. This will mean no obligation to buy on your part.

BELLWOOD DUMP CARS

SALES OFFICE, 516 Commercial Trust Bldg.

Works, BELLWOOD, PA. **PHILADELPHIA, PA.**

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In Repairs to Steam Shovels and All Excavating Machinery with the

OXWELD PROCESS

of Welding Metals

Broken Frame and Teeth of Large Hoisting Engine.
As shown this frame and six teeth 4 ins. long and 1 in. high by ¾ in. thick were broken beyond quick and economical repair by ordinary methods. They were welded by OXWELD PROCESS in 12 hours.

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With Oxweld Apparatus you can make repairs ***on the spot*** in a fraction of the time required by any other method. And usually at a fraction of the expense necessary for a new duplicate part.

The range of repair work possible with Oxwelding Equipment is practically unlimited. Not only does it embrace repairs to iron and steel castings and forgings of all kinds and cracks in boiler plate, but new metal may be added to build up parts worn too low for service.

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At our Chicago and Newark Plants we maintain a Special Job and Contract Welding and Cutting Department. Work of all kinds can be done in our shops—or where conditions demand we can have our skilled operators with the necessary equipment on the ground at short notice. All work guaranteed.

Write for estimate on welding your next piece of broken equipment.

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FORCE FEED
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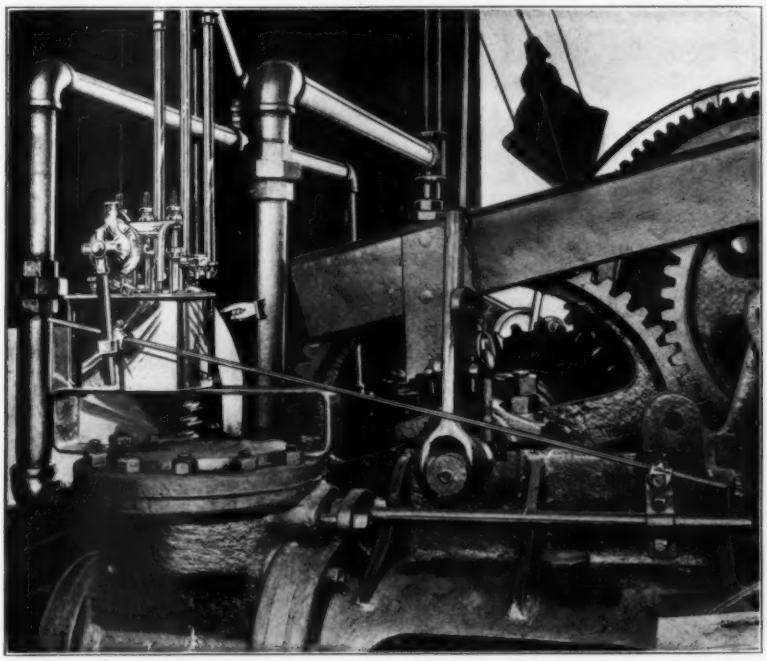
are operating on every description of cylinders.



They may be had in any number of Feeds and Compartments with Heaters, without any extra charge.

Hills-McCanna Company

153 W. Kinzie St. Chicago, Ill.

Modern Methods of Excavation. Class-14 Bucyrus Dragline Excavator, Caterpillar Mounted, Widening the Canal

Former Methods of Excavation

Canal Excavation on the Mugan Steppe by the Russian Irrigation Service

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The Excavating Engineer

Vol. 12 OCTOBER, 1915 No. 1

Dragline Work on a Russian Irrigation Project

An interesting piece of work now being carried on by the Russian Irrigation Service near the Persian border, where the use of a Bucyrus dragline excavator has resulted in a considerable saving over hand methods.

THE Russian Irrigation Service have considerable work in progress on the Mugan Steppe, near the Persian border line, 200 miles from the City of Baku, on which they are using a Bucyrus class-14 dragline excavator with great success. The work is being carried on near the Tartar village of Kardanly, which is 40 miles from Kurdamir, the nearest railroad station. The engineers have their quarters in Kardanly, which is a village of about 5,000 inhabitants.

The completed ditch will be 85 miles long, 100 feet wide and 14 feet deep. All except the last 10 miles of this has been completed by hand. The dragline excavator is being used to complete the 10 miles of unfinished portion, which has been dug by hand to half the necessary depth and the whole width. This section of the ditch runs parallel to the Araxes River.

Assembling the Dragline on the Job with a Pair of Chain Blocks and a Tripod
The Erection was Completed in 21 Days

The work which is being done is the deepening of an irrigation ditch, which was partially completed recently by hand. Much difficulty was encountered on the work because of the seepage from the Araxes River, which floods the bottom of the ditch. The contract had previously been let to Russian contractors, two of whom had failed because of the difficulties encountered, due principally to this seepage. The Russian Irrigation Service consequently undertook the work themselves and purchased up-to-date equipment, in order to handle the work efficiently.

The material, except for the fact that it is sticky and thus apt to cling to the bucket, is well adapted to dragline operation. The top four feet is a very rich loam and the remainder a mixture of sand and clay. It is interesting to note here that the quality of the clay dug out of the ditch has attracted the Tartars in this vicinity to bring their little brick machines along side the spoil bank in order to make adobe brick, of which all the houses in this part of the country are built.

UMI

The machine works along one side of the ditch, digging to the center line and depositing the material on the top of the old spoil bank, making an average swing of about 135 degrees. (See top view on page 8.) This has resulted in nearly an extreme dumping height and a very good depth of digging for a machine of this size. In the previous construction, three or four crossing places had been left for roadways. The machine crosses over on these roadways and then works down the opposite side of the ditch.

The only difficulty in actual operation, besides the fact that the material is somewhat sticky and has a tendency to cling to the bottom of the bucket, is the fact that the spoil has been previously placed, by hand methods, too close to the bank, and consequently has had to be removed in order to make a road way for the dragline. This has merely retarded somewhat the advance of the dragline. In spite of this fact it has been averaging about 1300 cubic yards in nine hours.

The ground has proved very suitable to the operation of the caterpillar traction with which the dragline is equipped. Occasionally soft sandy spots are encountered which allow the machine to sink from 10 to 12 inches. It has had no difficulty, however, in pulling out of these spots. No planking has been used under the caterpillars at any time.

The water for the machine has been pumped from the bottom of the canal by means of a hand pump operated by two men who were employed for the purpose. In order to avoid muddy water, small holes have been dug in the original bottom of the canal before the machine passed over. Considerable difficulty has been caused from the fact that the water has been found to contain a considerable amount of salts, which has caused frequent priming, consequently, it has been necessary to blow down the boiler on the average of every 2½ hours.

The fuel is a crude oil, which is hauled in small steel tanks from Kurdamir.

As a proof of the success of this machine under these conditions, it is interesting to observe that the Russian contractors did the work by hand at a price of 4 rubles or $2.00 per cubic sagen, which is equivalent to 12.73 cubic yards. The dragline on the other hand is doing the work at a cost of one ruble, 97 kopeks per cubic sargen. This includes operating expenses, overhead and interest on the original investment. The saving it will be seen is considerable. The machine is a standard class-14 Bucyrus dragline excavator mounted on caterpillars. It is equipped with a 60-foot boom and a 2-yard bucket and fitted for burning fuel oil.

The equipment on the work is small. Besides the dragline, it consists of a hand pump and a small blacksmith shop. The work is under the supervision of Nicoli Zvorekin, chief engineer. Under him are seven assistants, a dragline engineer and a fireman, besides two Tartar pitmen, two pump men and an oiler.

The contract for moving the machine on the work was let to a local contractor. The machinery was carried 40 miles from Kurdamir in wagons, drawn by oxen. It was necessary to cross the rivers Kura and Arax, which necessitated the building of pontoon bridges.

The erection of the machine was under the supervision of Frank Wilkinson, the Bucyrus Company's representative. He was assisted by six Russian boiler makers and eight Tartars. The Russians proved to be very good workmen, but the Tartars, on account of the fact that the only machinery that they had previously been familiar with were native water wheels, where inexperienced. Mr. Wilkinson completed the erection in 21 days, in spite of the fact that the only equipment that he had was a pair of chain blocks suspended from a tripod, which was moved from place to place as occasion demanded.

As this was the first machine of any size that ever came into this part of the world, its start caused a great deal of interest and was witnessed by over 300 natives.

The machine was sold to the Government through the Bucyrus Comapny's Russian representatives, the International Engineering & Trading Company, of Petrograd.

New Bucyrus Agent for Placer Dredges

The Bucyrus Company announces the appointment of the Union Construction Company, of San Francisco, as its agent for the sale of placer dredges for use in Western United States, Western Canada and Alaska. The Bucyrus Company has furnished more placer dredges than any other manufacturer and the Union Construction Company has had wide experience in the building of hulls and the erection of such machines in the United States, Alaska and foreign countries. This company is prepared to furnish all sizes of placer dredges. Estimates will be furnished for supplying complete machines of either the standard revolving screen, or the small light flume type. Such inquiries for machinery to be used in that territory should be addressed to the Union Construction Company, 604 Mission Street, San Francisco.

How to Use Your Idle Shovel

Postal authorities have arrested and secured a confession from two men who robbed the postoffice at Astor, Ia., Monday night. Suspicion was aroused against the men when they offered postage stamps for sale at a railroad camp east of Manilla and arrests followed. Stamps and other postoffice loot were found in the boiler of a steam shovel standing on a siding east of the Manilla depot.—Press Report.

The Carney-Cherokee Coal Company's Coal Stripping Plant Near Mulberry, Kansas

A description of one of the most recent and up-to-date coal stripping plants, and of the largest type of coal stripping shovel yet produced.

PROBABLY one of the most interesting coal stripping plants ever put in operation is that of the Carney-Cherokee Coal Company located 2½ miles north of Mulberry, Kansas, on the Kansas City Southern Railroad.

This plant is owned and operated by the Carney-Cherokee Coal Company whose main office is at Chicago, Illinois, having a local office at Pittsburg, Kansas, under the management of R. J. Lawrence.

This company is affiliated with the Carney Coal Company of Chicago who own extensive coal mines Iowa, Wyoming and Illinois. The Carney-Cherokee Coal Company was formed last year, for the purpose of coal stripping in Kansas. The officers of which are W. J. Carney, President, Wm. R. Carney, Secretary, of Chicago, and R. J. Lawrence, General Manager with headquarters at Pittsburg, Kansas.

After careful investigation the company purchased a field of 450 acres having from 14 feet to 36 feet in depth of overburden consisting of sandy clay and grey shale. The vein of coal is 32 to 34 inches thick of the best quality.

The Plant

The plant necessary to operate this field, which is the largest ever undertaken, is one of the finest ever built. No pains have been spared to make it substantial, durable and complete in every respect. The equipment consists of steam shovel, locomotive, tram cars, tramtrack, pumps and engines for freeing the pit, tipple with shaker screens, elevated water tank, artesian well, water pipes, engine and boiler house, blacksmith and repair shop, dinkey engine house, store house and office, all of which are the best in every respect. Construction of the plant and railroad switch tracks to handle the railroad cars was commenced

225-B Bucyrus Shovel Digging the Box Pit in Shallow Stripping—Mining Operations Underway in the Rear of the Shovel. Note the Wide Cut taken by the Shovel

October 20, 1914 and the whole was completed in 30 days. This broke all records for quick construction, including the installing of the monster steam shovel which required 11 carloads to transport it and which was unloaded and set up in working order in 23 days.

The Steam Shovel

The steam shovel is a Bucyrus 225-B designed especially for coal stripping. It is the largest revolving shovel in the world. Its weight in working order is over 300 tons. This shovel has a 75-foot boom, a 6-yard dipper holding nearly 8 cubic yards of material heaped up. It has a working speed of two trips per minute and has handled an average of 500 cubic yards per hour or 4,500 cubic yards per day of 9 hours, including natural delays, time lost in moving up, etc., surpassing all records for handling earth in stripping coal made by any steam shovel. On a recent three-day test under average conditions, it actually averaged 6,038 cubic yards per 9 hours. The shovel runs smoothly without any perceptible trembling or vibration owing to its massive construction. It is handled by two men as easily as an ordinary railroad steam shovel. Its design is quite different from any coal stripping shovel heretofore built and has proved to be a great success after six months' continuous work. Owing to its extra height it has the same scope of action as other shovels with longer booms. This shovel will dump over 100 feet out and uncover from 64 feet to 115 feet in width of coal according to the depth of stripping.

The dipper will dump the material 62 feet high above the surface of the coal on which the shovel is placed and will handle 40 feet in depth of overburden.

The upper body revolves on a turntable 30 feet in diameter. The turntable base is 30 feet square of massive construction entirely of steel. It is mounted on four steel swivel trucks each having four double-flanged wheels, 30 inches in diameter for a 36-inch gauge track.

The rails on which the shovel operates weigh 110 pounds to the yard, are fitted with bridle bars in sections about 7 feet 6 inches long and form a double track. The shovel is self-propelling by chain gearing to all four trucks. The truck base is fitted with a heavy steel equalizer beam across one end having a center plate bearing in the middle and jack screws at both ends which rest upon the trucks and by its self-adjusting movement allow the truck to

The Runway to the Tipple from the Box Pit

follow any unevenness of the coal surface when the shovel is moved up. The jack screws are then set tight and all four corners of the base are evenly supported.

One of the new features of this shovel is the single-part hoisting rope which lifts the dipper and leads straight from the main drum to an 8-foot diameter sheave on the point of boom, over which it passes to the dipper, thus doing away with the 3-part rope and dipper sheave used on all other steam shovels. This plan lessens the wear on the rope and does away with over-heating the checkbelt on the hoisting drum when lowering the dipper.

Another improved feature is the placing of the main hoisting engines and machinery as well as the swinging engines on a heavy steel plate girder frame, 4 feet in depth. This girder frame is riveted up solid and is shipped intact to the field, thus doing away with the overhead truss frame common to all other coal stripping shovels. This construction is impregnable and can never give way under any conditions.

The boiler, engines and machinery of this steam shovel are of the latest design and construction throughout, having been designed especially for the purpose. The entire shovel is of steel construction excepting the sides of the house or upper body which revolves on the turntable base. All gearing is of cast steel with machine cut teeth. The shovel as a whole is exceedingly strong and durable and repairs are very light.

The Operation

It may be well to explain that in coal stripping with the present type of revolving steam shovels, the material is handled but once, being dug from the bank and deposited on one side in the excavated space from which the coal has previously been taken out.

In opening up a new field the shovel digs its way down to the coal on a 10 per cent grade, making the "box pit" as it is called which may be 30 feet deep by 65 feet in width, the excavated material being dumped on the main ground level all on one side. The shovel is operated upon the coal surface and is moved up about 7 feet at a time as the digging progresses.

The coal is taken out behind the shovel and loaded into the tram cars by hand, as shown in our illustration. This also shows the steam shovel in operation just about to dump the load onto the spoil bank.

The tram tracks are placed on the fire clay in the bottom of the pit, having switches to permit shifting the tram cars as shown. There are 3 to 4 of these tracks up to the breast of the coal so that several cars may be loaded at once.

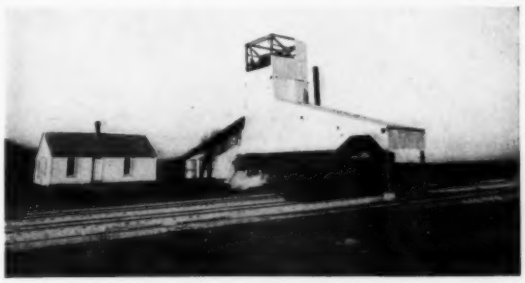
The Pit Equipment

The tram tracks extend from the tipple directly into the pit consisting of 20-pound rails of 3-foot gauge having the necessary switches and turnouts. There are 60 tram cars of two tons capacity each which were furnished by the United Iron Works at Pittsburg, Kansas. The cars are hauled to the tipple incline at end of pit by a small dinkey locomotive of 10 tons weight having 7 by 12 cylinders and a capacity to haul 20 cars in a train. There are three centrifugal pumps, furnished by the Pittsburg Machinery Company, operated by steam, as well as a steam syphon for pumping the water which may accumulate from rain-fall or seepage from the pit.

The loaded cars are hauled from the foot of the incline to the tipple platform by a wire rope cable where they dump automatically upon the shaker screen and are returned to place on a separate track. The pit and incline are shown on page 12. This view shows the "box pit", so called, which is the first cut made by the steam shovel in opening up the ground. The pit is 20 feet deep and 72 feet in width. The material dug being deposited all on one side. The tipple appears in the background.

The Tipple and Powerhouse

The tipple shown in our illustration below is 58 feet in height and is built in the most substantial manner, having 10 inch by 12 inch frame timbers and is covered with corrugated galvanized iron. A special feature of the design is in having the water tank placed in the upper part of the tipple, which is shown in the picture, being unfinished at the time the photo was taken. The tank is built of plate steel, is 12 feet in diameter and holds 10,000 gallons.



The Tipple

The tipple is 32 feet high from the ground to the dumping platform and is fitted with shaker screens of the ordinary perforated steel-plate type. These are operated by an independent steam engine of 20 horsepower. They separate the coal into three grades, lump, nut and slack.

The power house is adjacent to the tipple and very convenient. The frame is of wood covered with corrugated galvanized iron. It contains a 60-inch tubular boiler of 150 H. P. set in a brick arch. The engine is 8 inch by 10 inch double-cylinder mine hoist furnished by the McNally Boiler and Machine Works. It is geared to a 36-inch hoisting drum. The cable leads to the tipple incline and pulls the tram cars up at the rate of one car a minute. Within the power house is a well 1000 feet deep for supplying water to the steam shovel and other machinery on the plant. The water is pumped or raised into the pipeline by an air compressor, which has a 2-inch pipe extending to the bottom of the well, through which the air is forced, thus raising the water under pressure. It also supplies the tank at the top of the tipple from which pipelines are laid to the coal pits for supplying the steam shovels, etc., within the power house are the blacksmith and machine shops fitted with necessary tools for making repairs.

The tipple is located close to the Kansas City Southern Railroad, and to accommodate the railroad cars a siding 2,800 feet long was put in. The three loading tracks lead under the tipple in order that the three grades of coal from the screens may be loaded into separate cars at once. Our illustration on page 13 shows the tracks and one car waiting.

The store house and office building is roomy and convenient, being built in the same substantial manner as the rest of the plant.

The plant has a capacity to strip, take out and ship 800 tons of coal per shift of 8 hours with the present equipment.

Fast Shovel Work in Providence

A 3-yard shovel averages 2816 cubic yards per 10 hours for 12½ days, loading 4-yard cars.

Wilson & English of New York, have recently completed excavation work in connection with the construction of a bulkhead wall for the City of Providence R. I. at Fields Point near that city. In the prosecution of this work they report some fast shovel operation by their 70-C Bucyrus steam shovel.

According to the statement of the resident engineer, S. Frank Nolan, this shovel excavated 35,200 cubic yards from March 16th to March 31st, 1915. During this time the shovel was in operation 12½ days, as work was started at two o'clock on the first day and two days were devoted to moving back to new cuts. This gives an average output of 2816 cubic yards per ten hours for the 12½ days above mentioned.

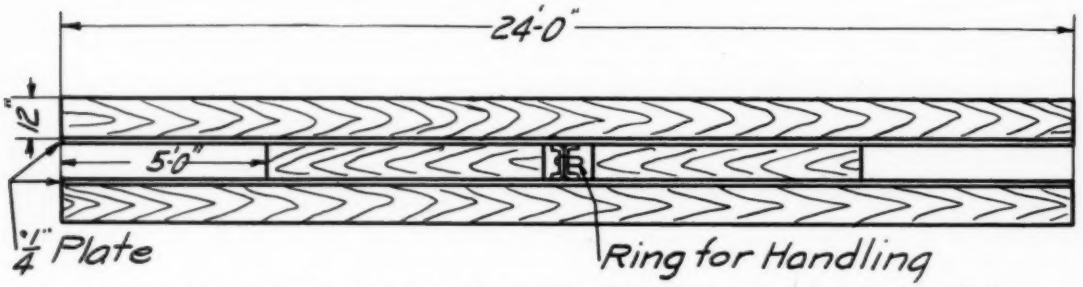
Wilson & English's 70-C Bucyrus at Providence—This Shovel Loaded 35,200 Cubic Yards in 12½ Days

The material handled was hard packed sand with loam and gravel. The average face carried was about 12 feet. The material was hauled in three trains of fourteen 4-yard Western cars each, by 20-ton 36-inch gauge locomotives, an average distance of about one eighth of a mile. It was used for filling in behind the new sea wall, which is about 1500 feet long.

The shovel was equipped with a 3-yard dipper.

The work, which was started in October, 1914, consisted of about 350,000 cubic yards of excavation.

W. D. Bullock is city engineer and S. F. Nolan, resident engineer for the City of Providence. John Stenson was superintendent of the job for Wilson and English. The shovel was operated by Dave Hennessy, craned by D. Sheehan and fired by W. Wheeler.



Platform used by W. J. Newman for Mounting his Revolving Shovel for Sewer Work. **See Pages 15-16.**

Digging a 7-foot 6-inch Sewer Trench in Chicago

A revolving shovel makes from 60 to 85 lineal feet advance per day in heavy blue clay.

THE W. J. Newman Company have been busy of late with a number of sewer contracts in the heart of Chicago.

The first of these, which was started on August 2nd and completed on August 12th, is particularly interesting as the contractor proved in a most convincing manner that it was possible to do the job economically and advantageously with a revolving shovel, many predictions to the contrary notwithstanding.

This contract called for the construction of a 5-foot 6-inch circular brick sewer on Canal Street, between Fulton Street and the Chicago River and Randolph Street, a distance of 2½ blocks.

The first half block at the Fulton Street end was dug by hand as railroad tracks prevented shovel work and necessitated tunnelling. The remaining two blocks to Randolph Street were dug with an 18-B Bucyrus revolving shovel.

This shovel was mounted on traction wheels and carried a ⅝-yard dipper on a dipper handle 30 feet in length.

The trench ran from 14 to 20 feet in depth, the deeper section on the Randolph Street end. The width was 7 feet, 6 inches. The material was a tough blue clay with occasional boulders, a hard material to dig, but one which required comparatively little planking. The shovel gave excellent satisfaction

W. J. Newman's Sewer Work in Chicago—Back-Filling and Brick Work in Progress—Note Back-Filling Wagon in Operation

and made an average advance, according to J. T. Carroll, treasurer of the Company acting as superintendent of the job, of from 60 to 85 lineal feet per 10-hour day.

The shovel worked on a set of platforms straddling the trench. These platforms, six in all, were 24 feet long by 36 inches wide. The sketch on page 14 shows their construction. They were made of two 12 by 12 inch timbers 24 feet long armored on the inside by ¼ inch plate. These were separated by another 12 by 12 inch timber 14 feet long with the center cut away for the insertion of steel straps on which is hung a ring for handling.

of about 3 feet. The purpose of this is to shoot the material into the trench. This side of the wagon consists of a door hinged at the top controlled by a lever beside the driver's seat. Each wagon has a capacity of 3 cubic yards.

In addition to these two wagons, a 6-yard Knox truck is used.

Beside the shovel crew, there are four men in the trench, shaping for the forms and handling the braces. These men assist in handling the platforms in moving forward. Two men are employed on the backfill, tamping.

Loading a Back-Filling Wagon—Note Shoot, High Body and Door, also Method of Mounting Shovel

The method of handling the backfill is unusual and most successful. Two wagons are used, designed especially for the purpose, by Mr. Newman. These wagons consist of an ordinary wagon truck on which is mounted a triangular box, the top of which is about ten feet above the ground. The floor of this box is, in effect, a shoot starting at the top on the outside and extending at an angle of about 45% past the side of the wagon, for a distance

The two brick layers are assisted by three passers and one man carrying morter.

As stated, work was started on August 2nd and completed on August 12th, five days being lost owing to rain, which speaks well for the management.

The shovel was operated by George Tremblay, craned by Ned Tremblay and fired by Martin Cody. Herb Kent was foreman.

Excavation Work on the Paducah and Illinois Railroad Nearing Completion

In the June number of the Excavating Engineer there was published an article describing the construction work on the Paducah & Illinois Railroad between Metropolis, Illinois and Paducah, Ky., a new single-track line of about thirteen miles in length. The excavation on this line amounted to a little over two million cubic yards which is now completed with the exception of a part of the last lift on the big bridge approach fill opposite Metropolis, Ill. which is being handled by Morris, Shepard & Dougherty of St. Paul.

70-C Bucyrus Shovel in Bridge Approach Borrow Pit, Showing Cutting Face

Richard Evans of Minneapolis with five hundred thousand yards of grading and Dougherty and Slane also of Minneapolis with about three hundred thousand cubic yards, have finished their work. The balance of the excavation was done by Morris, Shepard & Dougherty with a class-24 Bucyrus dragline and a 70-C Bucyrus shovel, working in conjunction with four-yard Peteler cars and Porter locomotives, both outfits working night and day in ten-hour shifts. The photographs give a good idea of the character of the work which is now finished except, as stated above, for the completion of the bridge approach fill. This fill is twenty-five hundred feet long and eighty-three feet high.

Bridge Approach Fill. First and Second Lifts Completed. Third or Final Fill Being Placed. Incline to River Shown Immediately in Front of Approach Fill

Bridge Approach Fill. First Lift Completed. Putting in Second Lift

Gravel Pit Operation C. & N. W. Railway

In the July 1915 number of the Excavating Engineer on page 375 there appeared an article with the same heading as shown above. Since the publication of this article we received a letter from E. L. Egner who has been operating steam shovels in the Cary Pit of the C. &. N. W. Ry. since 1906, stating that better records have been made in this pit recently.

During the month of May, four 65-ton Bucyrus shovels and one 70C-Bucyrus shovel, all equipped with 2½ yard dippers loaded, on several occasions, 600 Haskell and Barker 30-yd. cars, two of the machines working 24 hours and two 12 hours.

One 65-ton shovel averaged during two weeks time, working 13 hours per day, 150 30-yd cars per day. C. H. Crawford was engineer on this shovel.

One 65-ton shovel in a period of six hours loaded 92 30-yd Haskell and Barker cars. This shovel was operated by Anton Wiendel.

All of the twelve Bucyrus shovels which the Chicago & N. W. Railway now operate are equipped with 2½ yard dippers.

When Rastus Johnsing's son arrived,
He looked just like his poppy.
In fact the doctah done declared
He was a carbon copy.

—*Cornell Widow.*

That girl looks like Helen Brown!
That's not brown, that's pink!

"You told me it was one o'clock;
It just struck three," wife mutters.
"But, dear," he said with aching head,
"You know that old clock stutters."

Steam Shovel Work on the Spokane Trestle Fill

A 100-C Bucyrus with a 5 cubic-yard dipper excavated 13,000 cubic yards in 24 hours.

ON September 15th of last year the Chicago, Milwaukee & St. Paul Transcontinental trains entered Spokane on the new route. When the original main line was constructed, topographical conditions and engineering difficulties precluded the construction of the original main line through this city. Surveys were made for the new entrance in 1907 and 1908 and property began to be acquired in 1909. Actual excavation work was started on November 15th, 1913 and was finished about the first of July of last year.

The excavation work, which was handled by Twohy Bros. of Spokane, is interesting to shovel men mainly because of the efficiency of the management and train operation, which of necessity was in the heart of the city where the traffic was the heaviest. The management was such that outputs running up to 13,000 cubic yards were attained with one shovel.

The fill, which, as stated, is practically in the heart of Spokane, was for the purpose of making the approach to the new O-W, R. & N. and C. M. & St. P. terminals and contained about 1,250,000 cubic yards. The pit was located on the tracks of the Spokane Portland and Seattle Ry, 6½ miles west of Spokane. It was 3,500 feet in length with an average face of 35 feet.

The material might be called a cemented sand. In the bank it is packed hard enough to hold a perpendicular face which necessitated the shooting and loosening of the overhanging brow. Near one end of the pit was a strata of hard clay or shale about 10 feet in depth.

The 100-C Bucyrus, "The Big Swede", at work in the pit. Notice character of material. 13,000 cubic yards of this were loaded in 24 hours

These two views indicate the speed attained on the dump. The left-hand view shows the train starting out over the dump with two K and J 16-yard cars dumping. The right-hand view shows an Oliver 20-yard car dumping. This view was taken about 35 seconds after the first. The train was made up of seven K and J's and seven Olivers

The equipment was a very complete one, consisting of one 100-C Bucyrus shovel with a 5 cubic yard dipper, one Marion model 60, held in reserve, six locomotives weighing 237,000 pounds on drivers, 40, 16-yard K. & J. and 20, 20-yard Oliver air dump cars, one air drill, as well as a round house and repair shops equipped with a washout boiler air-hammers, pumps for testing cars, etc.

Two 12-hour shifts were worked, one crew relieving the other.

Four trains were used for hauling the material to the fill. As one of our views shows, the pit is on the S. P. & S. tracks. The grade from these tracks to the North Coast track below was 2½% and a half mile long. One helper engine was required on this grade. The North Coast line was not in operation by the railroad but was operated by Twohy Bro. with the block system.

175 men were employed on the work. The cook houses were run day and night as no regular meal hours were set for the train and shovel crews. The bunk houses were of the most approved design, equipped with "Tiger" steel bunks, manufactured by the Haggard Marcusson Company of Chicago. A private telephonesystem connected all parts of the work.

The Pit to the left—S. P. S. main line in foreground and North Coast Line 50 feet below

The highest output made was 13,000 cubic yards car measurement in two 12 hour shifts by the 100-C Bucyrus. This was approached several times.

W. M. Grier, was general superintendent and A. W. Sullivan, Wm. Dugan and J. C. Lappan assistant superintendents. J. W. Maitland, was timekeeper, and H. P. Gallagher, to whom we are indebted for the above, was auditor.

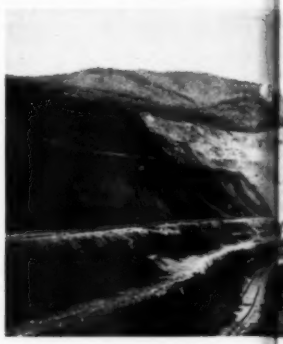
Recommendations for Repair of Concrete Pavements

Based upon present practice, the following recommendations are consistent.

1. The imperfection to be repaired should be thoroughly cleaned by brushing until all loose particles have been removed.

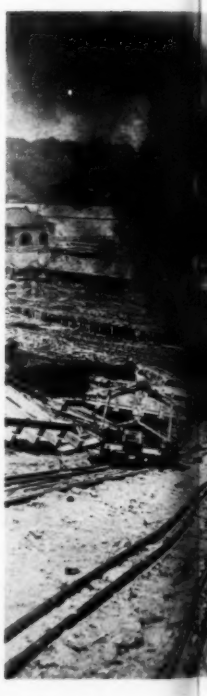
2. If a cut has been made through the pavement and exceeds 6 inches in breadth or diameter the sides should, after cleaning, be painted with cement grout, and the cavity filled with concrete of the same mixture and consistency as were used in building the original pavement. Any excavation should be backfilled with gravel, well tamped, and the concrete properly reinforced. The repaired portion should be cured by being kept moist for at least four days, and protected from traffic until thoroughly hardened.

3. If, due to careless mixing and placing or a bad batch of aggregate, a worn spot exceeding ½ inch in depth appears it should be carefully cleaned and dried, painted with hot tar and filled with stone. Several sizes should be carried by the repair gang, the object being to use in any given hole a size of stone large enough to reach nearly from the bottom of the hole to the surface, but never to use stone exceeding 2½ inches in diameter. Where large sizes of stone are used, voids should be carefully filled with smaller sized stone and the whole tamped or rolled into place. Hot tar is then poured over the patch, gaging the quantity so the tar will be absorbed without any large excess.



Eureka and Liberty Pits of the Nevada Consolidated Copper Company at Ely, Nevada, where eight 95-ton Bucyrus steam s
shovel number 5, loading waste, and the right-hand view Bucyrus shovel

A combination 3½-yard dragline, orange-peel and clam-shell excavator with 125-foot boom built by the Bucyrus Company and operated by the 4th District, Mississippi River Commission of New Orleans about 6 miles south of Baton Rouge on the east bank of the Mississippi River, constructing levees. This machine is also designed to operate from a barge.



These three views illustrate the method
pany for the excavation for the site of the
on the Portland Canal. The left-hand view
a Brownhoist locomotive crane lifting
The center and right hand views illustrate
from the pit when the grade got steeper

Western dump cars, one at a time, up and incline, by a cable operated dolly running on a narrow-gage track laid inside the
pushes the car over the depression. A pull on the cable makes the dolly engages with the rear bumper of

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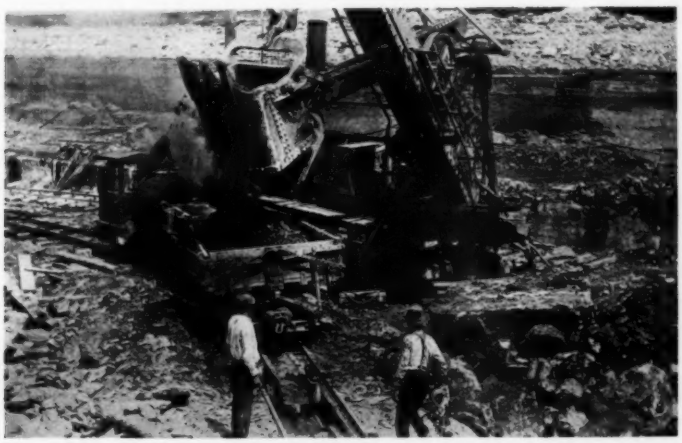
team shovels are in operation. The center photograph shows a general view looking down into Eureka Pit. The left-hand view Bucyrus shovel numbers 1 and 5, taking the cap off the hill between Eureka and Liberty Pits.

Hearin & Ryan's class-24 Bucyrus dragline excavator with a 3½-yard bucket and a 100-foot boom making an enlargement on the Mt. Olive Levee, across the Mississippi River from Plaquemine, La., twenty-two miles south of Baton Rouge. This machine dug 5,270 cubic yards in twenty-two working hours, and in 210 hours averaged 180 cubic yards paid material per hour.



method employed by the Ohio River Contract Com-
te of the Ohio River Lock number 41, near Louisville
nd view shows a 70-C Bucyrus shovel in rock and
fting concrete buckets to the top of the lock wall.
illustrate the method of taking the excavated material
eeper than 6%. The material was drawn in 4-yard
ide the dump car tracks. At the foot of the incline, the dolly runs into a depression, shown in the right-hand view. The locomotive
bumper of the dump car and thus pulls it up. With two tracks in operation, a car can be handled once a minute.

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4. Imperfections less than ½ inch deep, cracks less than 1 inch wide, and expansion joints from which the filler has wholly or partly disappeared, should be cleaned, dried and filled a little above level with hot tar, on the surface of which thoroughly dried gravel or granite from ⅛ to ¼ inch in size should be spread with a shovel.

5. Refined coal tar should be used, having a melting point (1½-inch cube method in water) of about 100 degrees Fahrenheit. The tar should be heated to from 225 to 250 degrees Fahrenheit at the time of application and may be applied by means of a sprinkling can with spray nozzle removed. For the wearing surface, thoroughly dried sand or screenings graded from ⅛ to ¼ inch should be spread over the top before the tar has cooled enough to prevent the sand from becoming firmly embedded therein.

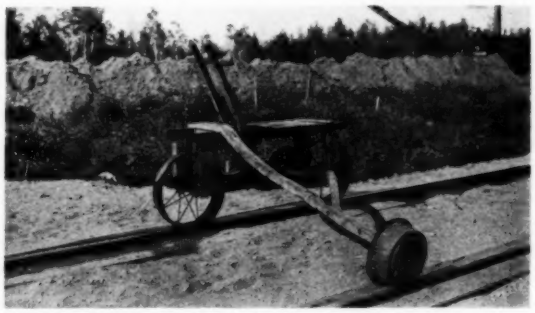
Skewed Joints Better than Right Angle Joints for Concrete Road Construction

The U. S. office of Public Roads in Bulletin No. 249 of the Department of Agriculture, recommends skewed joints for concrete roads instead of joints at right angles to the direction of traffic. With the joint at right angles the two wheels of a vehicle strike the joint at the same time and thus produce the maximum amount of impact. By skewing the joint at an angle of about 15 deg. the wheels strike one at a time, and the total resultant impact is reduced by at least one-half. This is advantageous to both the traffic and the pavement, and since the difficulties involved in constructing skewed joints are not at all serious, there is no apparent objection to their use, are opinions expressed by the bulletin.

A Unique Home-Made Hand Speeder

The ingenious piece of mechanism described and illustrated herewith certainly seems to substantiate the time worn saying that "Necessity is the Mother of Invention".

This photograph and description was sent to us by Wm. Smaill, superintendent of the Winnipeg Aqueduct Construction Company at Whitemouth River, near Winnipeg. This remarkable home-made hand speeder was made last winter by a foreigner who lived out in the bush along the line of the new Winnipeg Aqueduct now under construction. Two of the wheels were made from old wheelbarrow wheels and the outrigger wheel from half of an old tea kettle, the flanges of which are a part of an old galvanized culvert head. The sprockets were made by riveting two pieces of old galvanized culvert head with notches cut in each side and bent over slightly to catch a small piece of ¼ inch chain. The ingenious owner is frequently seen by the men on the construction work speeding up and down the track.



A Home-Made Hand Speeder in Use Along the Line of the New Winnipeg Aqueduct

Standard Method Adopted for Rating Batch Mixers

Up to the present time there has never been any standard method of rating batch mixers. Some mixer manufacturers rate their machines by their capacity in mixed concrete, while other manufacturers rate them by their capacity in loose unmixed material. It is a well known fact that a mixer having a batch capacity of 8-9 cubic feet of unmixed sand, stone and cement will hold only about 6 cubic feet of mixed concrete per batch. For this reason the term three, four, or nine foot mixer has never had any real, definite significance.

The National Association of Mixer Manufacturers, at their August meeting, took steps toward remedying this difficulty by adopting a resolution providing for the uniform rating of batch mixers. This resolution provides that the members of the association in future catalogs and circulars shall specify the capacity of their mixers as "size of wet, mixed batch," and not otherwise. The resolution further provides that the dry unmixed capacity of a mixer may be approximated as one and one half (1½) times the wet mixed batch, assuming the use of cement, sand and one and one half (1½) inch crushed stone, with 1¾ gallons of water per cubic foot of mixed concrete. The members of the association further agreed not to use the dry batch rating in their correspondence, advertising, etc. unless the standard wet batch rating were used also and with equal prominence.

Any contractor who has endeavored to make a fair comparison between various makes of concrete mixers, will appreciate the benefit of this change. The former lack of standard rating has not only been a source of much confusion, but has undoubtedly resulted, many times, unwittingly perhaps, in misrepresentation. We feel that the National Association of Mixer Manufacturers are to be congratulated on this very desirable step.

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Bradlee Van Brunt, Manager and Editor

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Construction Outlook

Industrially, conditions are improving steadily. The purchasing power of the people of this country is greater today than ever before in history and undoubtedly will be increased steadily for the next few months at least. The practical conclusion of negotiations for the floating in this country of the $1,000,000,000 loan for the Anglo-French Commission will enable Great Britain and France to establish credit in the United States which will result in wide-spread benefit. The financial ability to handle our tremendous crops has always been a vitally important matter this time of the year. The improvement in banking facilities and the great increase in surplus bank reserves will provide ample funds and will not produce a financial pinch in manufacturing circles as heretofore. This undoubtedly should revert to the benefit of the railroads, especially as it is generally conceded that our fall crops will be tremendous. Signs already seem to be appearing in the railroad field to indicate that a considerable amount of work will be done this Fall. The activity of the Southern Railway and of the Charlestown Southern in the South, and the Erie Railroad in the East is significant.

How Contractors Can Do their Part for the Security of the Nation

Following the remarkable success of the military training camps for business and professional men at Plattsburg, New York, another camp of similar nature is now in full swing at Plattsburg, and still another at Ft. Sheridan, Ill. The realization of the weakness of our own defense is beginning to impress itself upon the minds of thoughful Americans and many of them are doing everything in their power to rectify this weakness. A great many of the largest manufacturers and business concerns in the vicinity of Chicago and Milwaukee have supported this military training camp movement by sending a quota of men with leave of absence at full pay and expenses paid.

It would be well if the contractors of this country would follow the patriotic example of these concerns by figuring out how they can aid in preserving the security of our nation. A superintendent, a foreman or a shovel man in time of war would, if properly trained along the right line, be extremely valuable to his country. He is hardened by a strenuous life in the open air and he possesses an unusual amount of ingenuity and practical common sense. There are many branches of the service which are peculiarly adapted to his qualifications. The engineering corps is becoming more and more important as is the artillery. It is probably too late this season for another camp to be planned by the government but there will be plenty of opportunities as time goes on. We are sure that the contractors of this country will do their part to strengthen the defence of the nation.

Have You Ever Been Stumped on the Job?

The attention of our readers is called to the note at the foot of our Field Note Department on page 24.

There are many young shovel men who are occasionally up against it on the job. No matter how proficient an operator he may be, problems occasionally develop which stump him and which experience only can solve. This refers also to dragline excavators, as there are a great many shovel men who are breaking in to the dragline business and are not as familiar with the problems encountered as they might be. If these problems are explained to our Field Note Department, the questions will be answered through our columns by a committee of old time shovel and dragline men of long and varied experience. Furthermore, any of our readers who can give us a better solution is cordially invited to do so and his contribution will be duly published.

· FIELD NOTES ·

QUESTIONS pertaining to the operation, maintenance or repair of excavating machinery will be answered through this column. Address, Field Note Department, Excavating Engineer, P. O. Box 607, Milwaukee, Wisconsin.

How to Lift Boom Engine Crank Shaft

Hibbing, Minn.

Can you give me a quick and simple method of lifting a boom engine crank shaft on a 70-ton shovel, in order to babbit the bearing?—M. A. K.

There are nearly as many methods of lifting the crank shaft of the boom engine as there are shovel engineers. Some, however, are simpler and quicker than others. An old-time shovel man tells us that the way he goes about it after having removed the caps from the crank shaft bearings, is to raise the dipper and chock the thrusting gear and pinion, then with a piece of chain or a good strong rope, get a hitch around the dipper handles and the crank shaft. Dropping the dipper consequently raises the crank shaft with the least possible trouble.

Another Simple Method of Raising Folding Jack Arms

In our last number, we published an article describing a simple and quick method of raising folding jack arms. This method it may be remembered was to raise the dipper and chock the thrusting gear and pinion, than attach chains from the ends of the dipper handles to the bottoms of the jack arms. Dropping the dipper of course raises the jack arms.

Mr. Phillip Rouse tells us that he has another method of raising his jack arms, which is very quick and simple. He goes about it by hanging a snatch block to one of the legs of the A-frame. A line from this snatch block is attached to the bottom of the jack arm. The other end is run from the snatch block and after the dipper has been hoisted, a number of wraps are taken around the hoisting drum. When the dipper is dropped, this rope naturally winds up, thus lifting the jack arm. This has proven a very simple and efficient method.

One Way of Saving the Cost of a Night Watchman

It sounds like an absurdly simple proposition, but it was by means of it that the Wilkes-Barre Railway Company were able to save the cost of a night watchman on the new construction work which they were pushing last season.

This company has a Bucyrus revolving electric shovel in operation on their lines. Mr. Ed. Rees, master mechanic, devised the following method of locking the shovel. As will be seen from the photograph, the shovel has slip doors. A locking device was fitted on the inside of these doors. Attachment was made to the two channel irons of the house frame on the inside of the house and the door was so arranged that it dropped down over iron cleets on each door.

The Wilkes-Barre Railway Co.'s 14-B Bucyrus Electric Revolving Shovel, Showing Mr. Rees' Attachments

Mr. Rees has also provided a means of protecting the shovel against striking an over head wire by putting a small wooden canopy (shown in the photograh) on the point of the boom. This proved very effective indeed.

It may also be observed from the photograph that a hardwood bumper block has been attached to the bottom end of the dipper handle in order to protect the sticks when dropping the dipper far back.

PRIZE CONTEST NOTICE

The closing date of the Prize Contest, open to shovel, dragline and dredge men, for the two best labor-saving kinks, notice of which was published in our September number, has been extended to October the 18th. All contributions should be addressed to The Excavating Engineer, Field Note Department, P. O. Box 607, Milwaukee, Wisconsin.

"You mustn't laugh so at the table," expostulated the mother.

"I ain't laughing at the table," said the youngster. "I'm laughing at Miss Green."—Exchange.

Blighter—That statue is immodest. There should be something over it, if only an undershirt.

Blather—Yes, I see—make a sort of B. V. Deity of it!—*Harvard Lampoon.*

DEVICES YOU OUGHT · TO KNOW ABOUT ·

Traction Wheel Locomotive Crane

A small traction wheel locomotive crane with clam shell bucket for loading motor trucks and wagons is now being built by the Davenport Locomotive Works, Davenport, Iowa.

It is driven by gasoline, kerosene or steam engine or electric motor.

It is so light in weight that it will travel on standard wheels over ordinary good hard roads without the use of plank, and for work over very soft ground caterpillar wheels are provided.

Besides being provided with the ordinary rotating propelling and hoisting mechanism usually found on cranes, it is equipped with a device by which the operator controls the steering mechanism and travel brakes from the operator's platform.

Although primarily designed for use in unloading gondola cars on side tracks and loading trucks in coal and building material yards, they are found to be very useful to contractors unloading material for country roads, as they travel from place to place under their own power and can be used on the average country switch track.

They are also used about lumber yards and various plants which require a locomotive crane and do not have truck facilities for a railroad crane.

An electric lift magnet is used for handling scrap iron.

Davenport Locomotive Crane

A New Narrow-Gage Dump Car

The Western Wheeled Scraper Company of Aurora, Illinois, have recently put on the market a dump car of 5 cubic yards capacity for 36 inch gage. This car virtually takes the place of a 4-yard car.

Its design is the result of an increasing demand for greater capacity in narrow gage equipment. It is a foregone conclusion that the greater the capacity of the car, as long as it will stay on the rails, the greater the possible output and consequently the smaller the cost of handling the material. It is apparent furthermore that a 5-yard car will hold 25% more material than a 4-yard car. Consequently, eight 5-yard cars will have the same capacity as ten 4-yard cars. The dead weight of a 5-yard train is much less than a 4-yard train of the same capacity and the cost of handling is consequently proportionally less. Any steam shovel man will appreciate that there is a considerable saving in operating cost and in labor in spotting a train of 5-yard cars over a train of 4-yard cars not only under the shovel but on the dump.

This car deserves to become very popular among contractors. It is built along the same lines as the well-known heavy duty 4-yard car, built by the Western Wheeled Scraper Company. Its construction contains the same prominent features of other Western cars such as steel draft beams, yoke and spring coupler, malleable hinges, axles, castings and heavy truck construction. It also has the same steep dumping angle and automatic side doors with the pivoted door arms and braces.

UMI

SHOTS FROM THE · FIRING LINE ·

Arizona

From Arizona

By G. H. Hutchinson

J. H. Maxey who is handling the Tucson, Cornelia and Gila Bend Railroad with the aid of a Ford car, Pat Sullivan and two Mexican dictionaries, will have the road completed by the first of the year. About all the work has been subbed except the bridge building. Talk about a Sunny Jim smile, J. H. has it. We are promised a ride in a new Packard!

Jim went into a barber shop to get his nails manicured. After some time had elapsed, the porter came in all excited and said, "Mr. Jim, am dat yo fode cah outside? If it is, yo betta look afta it. De ants am draggin it unda de side-walk."

The railroad will be 43 miles long and is being built from Gila to Ajo, to serve the New Cornelia Mining Company at Ajo. The mine is located, and is principally copper 50,000,000 tons developed. 11,000,000 tons will be leached with acid and the copper recovered from the solution by electricity. The balance is sulphides and will be treated by the floatation process. A 4,000 ton mill will be built immediately. John C. Greenway is manager with offices at Warren, Arizona. M. Curley is superintendent at Ajo, and a very capable man. His experience gained on the Iron Range will help him to make a success of the Cornelia. We spent a very pleasant day with him.

Ajo is at an altitude of 1,700 feet and is in the southern part of the state. Population of about 350, consisting of the mine management, miners, etc. In addition to the above there is a large floating population made up as follows:—Greenlizards, tarantulas, rattle snakes, side winders, scorpions, centipedes and one steam shovel salesman. The shovel man floated as soon as possible after he captured a tarantula crawling up the side of our bed room. No, we hadn't been drinking. The state went dry last election. One old timer said if he had known it was going to be as dry as this, he never would have voted for it.

I am not going to tell you how hot it gets, anywhere from 90 to 200. The next trip I will take with me a tyrometer.

A negro porter went into a drug store at Tucson to buy a thermometer. He was asked what kind he wanted. "Ah wants one dat stays at 70 all de time."

At Jerome, where Senator Clarke's mine, the United Verde, is located. We learned that the profits were $1,250,000.00 per month. The new smelter at Clarksdale is now running full blast, making 5,000,000 pounds of copper per month. We are trying to get some of the million, don't care which month we get it out of.

On our way back to Los Angeles, at a Harvey house lunch counter, this conversation took place between two trainmen and a waitress, "Let us have two orders of pork spareribs, and tell the chef not to manicure them."

After being gone ten days, we arrived at Los Angeles with a bag of dirty linen in a tin box, still alive, and an appreciation of the cool ocean breezes and the desire to take up unfinished business. Los Angeles is bigger than Bisbee.

California

San Francisco—A contract will doubtless be awarded to the San Francisco Bridge Co., 14 Montgomery St., at $51,324 for dredging Oakland Harbor. It will require 520,000 cubic yards dredging, place measurement.

Corona—Contract for improving about 2.5 miles Ontario Ave. has been awarded to the S. & C. Contracting Co., Washington Building, at $49,439.

Stockton—Contract has been awarded to Cy Moreing & Sons for Weber and Murphy Ferry Roads and West Lane at $23,512, and to C. W. McIntyre for Jack Tone Road at $11,000.

Hollister—Contract for grading, graveling and construction of bank protection on five miles of road from Tres Pinos to Paicines has been awarded to Lou G. Hare, Salinas. Estimated cost is about $15,000.

Giant—Atlas Powder Co. will make additions to plant. Contract for grading has been awarded to Bates, Borland & Ayer, Oakland Bank of Savings, Oakland.

Riverside—Contract for construction of 9.29 miles of concrete road on route No. 11 has been awarded to C. L. Hyde Construction Co., Spreckels Building, San Diego, for $38,740.70. Contract for construction of 3.57 miles of concrete pavement on routes 13 and 14 has been awarded to Brashear-Burns Co., Van Nuys Building, Los Angeles.

Los Angeles and Vicinity

By G. H. Hutchinson

We are sorry to hear that C. H. Sharpe, whom many of our readers remember has gone into the hospital for an operation on his throat. He has been under the doctor's care for many months. If a good big railroad job would show up, Charlie would get well. The doctors couldn't find him!

Robert Sherer & Co. have a contract to reconstruct the tunnel that caved in from the timbers burning out from the Tebrachi Mountains for the Southern Pacific. Charlie Crowley, who is the co-partner of the above firm, has entirely recovered from the attack of rheumatism which he had for a couple of years. Charlie has been driving a Ford and is now getting so fat, he will soon have to have a truck.

Robert Sherer has been up in Oregon on a hunting trip. Will tell you about it in the next issue.

Canada

Notes from the Welland Canal

By J. G. Beck, St. Catherines, Ont.

A heat record has been established on September 13th and 14th. Records show that these two days were the hottest ever experienced on the same dates in previous years in the history of St. Catharines.

On July 26th the Port Severn locks at the Georgian Bay end of the Trent Valley Canal were opened for traffic. The Lake Simcoe level, which is 318 feet above Georgian Bay and 470 feet above Lake Ontario, is the highest on the canal. The Trent Valley Canal has been in progress for many years, however, it is expected that it will be completed in a year or two. The canal is 222 miles in length.

L. P. Yale of Chicago spent several days in St. Catharines the latter part of August, since which time he has been enjoying the delightful climate of the Muskokas. "Huck" tells us L. P. expects to stay up north until the golden rod crop is all harvested.

(*Same Lodge!—The Editor.*)

The S. S. Calgarian of the Canadian Steam Ship Lines, arrived at Port Weller, the outlet of the Welland Ship Canal into Lake Ontario. The Calgarian, which carried a cargo of piling, is the first vessel to enter the new port which the Dominion Government is constructing.

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It is reported that a plan of financing the operation of the line of the Algoma Central & Hudson Bay Railway is being considered. The receivers of the company, acting on behalf of the bond holders committee in London, England, have submitted a report on the property.

The contractors along the Welland Ship Canal have been hoping that this district would go dry—not in the sense that the prohibitionists have hoped for it, but from a point of self preservation. Had the rains of August continued into September, it would have been necessary to equip all of the steam shovel and dragline and train crews with life belts and the pit men with divers suits. As a matter of fact, it was so wet here in August that Mike Conroy's mules developed web feet. But then you can expect most anything from St. Louis. "Huck" and the "Old Top" were on the verge of putting hydroplane runners on their new Western wagons, however, Old Sol came to the rescue and has been doing great work for a couple of weeks. Operations on the canal are nearly normal again.

Mr. Walker, who has for years been connected with Grant, Smith Co. & Locher, having had charge of some of their very large contracts in the States, is now "the man behind the gun" for the St. David's Sand Co. We wish Mr. Walker every success and assure him a hearty welcome to the Land of the Maple Leaf.

Vancouver and Vicinity

By A. G. Brown

Lieut.-Col. A. E. Hodgins is organizing a corps of Royal Engineers in British Columbia. Col Hodgins, who saw a good deal of active service in the South African war, has of late been connected with the British Columbia Department of Public Works, and formerly with the Grand Trunk Pacific Railway.

The Warren Construction Co., at Saanich, B. C. have commenced the paving of the main Saanich Road. The progress on the waterworks system has been satisfactory, and, generally speaking, there is a considerable amount of municipal engineering activity.

Concrete work has been completed on the new government dock at the foot of Salisbury Drive, Vancouver, B. C., and the wharf will be entirely finished in the course of a few days, nothing remaining but some filling in behind the side walls of the dock. Several dredges have this work under way at the present time. The dock will be in use next month. Messrs. Henry, McFee and McDonald, of Vancouver, are the general contractors for the Department of Public Works, Ottawa.

Foley Bros. expect to finish their grading contract on the Edmonton, Dunvegan & British Columbia Railway as far as Smoky River crossing early in October, and grading to Spirit River will be completed by November 1st. Piles are now being driven for a temporary bridge to carry the steel across Smoky River. Messrs. McPherson & Quigley are the contractors for this structure. The abutments for the permanent bridge will be completed this fall, and the bridge will be completed before the high water of next year. The erection of a temporary bridge will enable steel to be laid to Spirit River, beyond the Smoky, and will also give access to a very fine gravel pit on the west side of the river. Access to this pit is necessary to the railway, for ballasting purposes, as there is no other deposit of equally good gravel on the line. From the level of the upland on the west side of the Smoky the grade is eighty per cent. completed to Spirit River.

A start is expected to be made shortly by the Vancouver Harbor Commissioners toward the reclamation of 42 acres of tide flats to be utilized for industrial and warehouse sites.

In the British Columbia appeal court, McIlwee Brothers, contractors, Denver, Colo., won their appeal for half a million dollars judgment against Messrs. Foley, Welch and Stewart, contractors for the Rogers Pass tunnel. The plaintiffs sued for $527,000 for damages alleged to have accrued to them through breach of contract in building the great Canadian Pacific tunnel and on prospective profits. The trial judge in the appeal court allowed them only $30,000 and dismissed the remainder of their claim. The appeal court added approximately half a million dollars to the judgment.

The contractors for the government jetty at the North Arm of the Fraser River expect to complete their contract this week and will then concentrate their efforts on the second unit of the main channel jetty, on which favorable progress has been made on account of the weather conditions.

The C. P. R. has announced that 25 miles of steel will be laid on the recently completed grade on the Lethbridge east line near Foremost.

The city sewerage system of Chilliwack, B. C., has been completed. It has been under construction for the past sixteen months, the work having been handicapped by water and quicksand. Originally it was being done by contract, but it was later taken over by the city and completed under the direction of A. Hobson, city engineer.

Under the direction of the Department of Mines at Ottawa, the laying of a pavement was commenced last week at Edmonton, Alta., in which is being used asphalt from the deposits in Northern Alberta, chiefly at Fort McMurray. It is expected that similar experiments will be made in Calgary at an early date. The product has been given the name of McMurray asphalt and indications point to its successful use as a paving material.

Messrs. Cassidy, Cook & Ker, of Vancouver, interviewed Sir Richard McBride and renewed the application that the Government should guarantee the bonds of the company which proposes to proceed with the work in connection with the Sumas Dyking project.

James Carson, of the contracting firm of Carson and Whan, Edmonton, who have large contracts for grading near Smoky River on the Edmonton, Dunvegan and British Columbia Railway, was killed last week while manipulating a large grader.

A Central Canada Railway, sub-contract is reported to have been let to J. Timothy for grading the last 22 miles to Peace River Crossing, Alta.

D. O. Lewis, chief engineer of the Vancouver Island division of the Canadian Northern Pacific Railway Company, stated that it is the intention of the company to proceed with tracklaying on a portion of the west coast section of the railway, as well as on the Patricia Bay line.

The works committee decided to open and grade Shelbourne Street from Saanich, B. C. to Douglas Park. The Gorge Road may also be paved from Harriett to Tillicum Roads, while the same improvement will be carried out for the half-mile on the main thoroughfare from the city boundary to the junction of the Carey and Saanich Roads.

Delaware

Wilmington—Contract has been awarded to the McNerney Co., Canton, Pa., for constructing the De Point boulevard, at $46,817.

Florida

Bradentown—Edgar Chatman of Plant City, Florida, has been awarded the contract for constructing a main canal and nine laterals for the Gamble Creek Drainage District. This contract calls for 1,340,096 cubic yards of excavation at $113,000.00.

Clearwater—A contract awarded the Edwards Construction Co., Tampa, Florida, for constructing 73.34 miles of brick roads.

Georgia

Savannah—The Gadsden Contracting Co., Savannah, has been awarded contract for the first 10 miles of line out of Savannah, for the Charleston Southern Railway, the new 85-mile branch line of the Seaboard Air Line Railway; it is reported that the work will cost $50,000 per mile.

Illinois

Chicago and Vicinity

By Forrest Fordham

Geo. W. Renwick, son of F. W. Renwick, vice-president and general manager of the Chicago Gravel Company, while on his vacation usually spends all his time at the Chicago Gravel Company's plant at or near Joliet, Ill. Geo. W. Renwick is much interested in the workings of steam shovels and is today quite well posted. He has had his uncle, Ed. Renwick, who is general superintendent of the Chicago Gravel Co. and is a very capable man, assist him in learning the steam shovel as well as the gravel business.

Fred R. Jones of the Fred R. Jones Co., Cleveland, Ohio, reports that they are getting along nicely with their work on the new reservoir which he is building for the City of Cleveland, Ohio. He is using a 70-C Bucyrus shovel, 12-yard Western cars, and three large standard six-wheel switching locomotives. The 70-C shovel is handling the surface material of about 10 to 12 feet of stiff clay and rock without blasting.

Roy Kraster, steam shovel engineer, called at our office on September 15th on his way home to Indiana. Mr. Kraster is and always has been an operator and admirer of Bucyrus shovels.

A. W. Theel, steam shovel engineer, of No. 1425 Diversey Parkway, Chicago, was a caller at this office on September 15th. Mr. Theel is a well known steam shovel man, having been in the business many years.

Frank Burke, general contractor, who resides at 6043 South Park Ave., Chicago, was a caller at our office on September 16th. He has a sewer contract at 95th to 99th Streets, between South Park and Michigan Ave., in 2nd Roseland addition. He is putting in water pipe connections and sewer pipe connections, paving and sidewalk work. Mr. Burke has been in the contracting business for the past 20 years.

Chas. Anderson of the Indiana Sand & Gravel Co., recently purchased a Bucyrus shovel and reports that they have more orders than they can fill. We are pleased to know that they have all the business that they can attend to.

Forrest Fordham of the Bucyrus Company, connected with the Chicago office, recently returned from a trip which took him all along the Mississippi and Missouri River Levees between St. Louis, Alton, Ill. and Hannibal, Mo., where they have had the recent floods. Mr. Fordham reports that many miles of the levee have been washed away and hundreds of acres of the low lands adjoining the levees are still flooded—acres of grain from the shock ruined—many acres of corn 6 to 7 feet high all bown down. It will be necessary to do a lot of levee work in the very near future in the Mississippi and Missouri River Districts.

W. S. Russell, sales representative of the Bucyrus Company, located in Pittsburg, Kansas, when taking his vacation, passed through Chicago on his way East and paid us a visit recently. He is looking well and feeling fine and expects to be on the job again the first of October.

Indiana

Indianapolis—Mr. and Mrs. Tom Poole have moved from Kivel, Ky. to Indianapolis, where Tom is now operating a dragline for the Marsch-Cleary-White Company.

Rochester—The contract for constructing two gravel roads has been awarded to Martin McHale, Logansport, Ind., and to Estit A. Gast, Akron, Ind., for one, and to Hatch & Casvey, Macy, Ind., for the other.

Iowa

Glenwood—The contract for constructing Pony Creek ditch has been awarded to Fred M. Crane, Omaha, Neb., at $20,296. This will require 172,000 cubic yards of earth work.

Kansas

Fowler—Cameron, Joyce & Co., Midland Bldg., Kansas City, Mo., has been awarded the contract by the Cudahy Packing Co. for grading, bridging and track laying for 8 miles of line from Fowler to silicate beds. Work is to begin at once.

Pittsburg and Vicinity

By W. S. Russell

We are having fine weather as usual in September. The roads are dry and the farmers are gathering and hauling in their crops. Business is good and the people appear to have money to spend judging from the crowds that throng the streets and stores every Saturday.

The coal business is good and the demand increasing. We quote prices as follows: Lump, per ton $2.00; Nut, per ton $2.00; Mine Run per ton, $1.75; Mill Run per ton, $1.60; Slack per ton, $1.35 F. O. B. railroad cars at the mines.

We note from trade journals a general improvement in the soft coal trade in Illinois, Indiana and Ohio and prices have advanced from 10 to 25 cents per ton. A car shortage is reported in Indiana and there are indications of the same in Kansas. The unusual cool weather of the past summer has increased the coal consumption and kept the cars moving. All indications point to a good business the coming season.

The coal stripping firms are all busy working full time. There has been eight new coal stripping steam shovels purchased so far this year for the Kansas field and several of them are already installed which demonstrates that this business is in a prosperous condition.

The 225-B Bucyrus steam shovel purchased by the Pittsburg & Midway Coal Mining Company is now working near Midway. This steam shovel weighs over 300 tons, is fitted with an 80-foot boom and carries a 7-yard dipper which handles 5000 cubic yards of strip material per day of 9 hours.

The Bucyrus Company have sold six of their 225-B coal stripping steam shovels for the Kansas field during the past six months including one for Oklahoma and one 175-B now operating at Scammon, Kansas.

The Pittsburg Paving Brick Company have moved their model 250 Marion steam shovel from North Pittsburg to Frontenac where they are stripping a field of coal for the Santa Fe Railroad with a 175-B Bucyrus. J. J. Nesch is general manager and A. A. Hammel superintendent of field operations.

W. J. Lester, general manager of the Sherwood-Lester Coal Company is putting up the tipple and other equipment for their new plant near Liberal, Missouri. Their new 225-B Bucyrus steam shovel is being installed. Chas. Flynn of the Bucyrus Company is in charge of the erection.

The new 175-B Bucyrus steam shovel purchased by the Pittsburg-Scammon Coal Company is working on a field a mile south of Scammon. Harry Miller is manager in charge of field operations.

Frank Pierce, Sr., of the Pierce Coal Company spent severa days at Pittsburg last month.

Stuart Crowe and W. C. Shanks of the J. R. Crowe Coal Mining Company were at Pittsburg recently looking after their mining interests.

There are good opportunities for parties having means to engage in coal stripping in the Kansas field. Strip coal land can be bought or leased at reasoable prices and there is good money in the business. Further information will be furnished by addressing W. S. Russell, Stilwell Hotel, Pittsburg, Kansas.

The Bucyrus Company have a stock of repairs for their coal stripping steam shovels at the Pittsburg Machinery Company's store room which is a great convenience to owners of Bucyrus steam shovels.

The Pittsburg Machinery Company are located at 806 North Broadway where they occupy an entire building with a large stock of coal miners, mill, railroad and contractor's supplies, tools, machinery, engines, boilers, pumps, motors, etc., for either steam, gasoline or electric. Also repairs for Bucyrus steam shovels. W. L. Sullivan, general manager, will be glad to see you.

Kentucky

Irvine—W. C. Moran is operating a 70-C Bucyrus shovel for the L. & N. Railway here.

Hopkinsville—Contract has been awarded to D. C. Mc Quarry, Adams, Tenn., at $24,611.64, for constructing six miles of pike on Princeton road. This will be 12 feet wide. Work will be begun at once and must be completed by June 30, 1916.

Brownsville—Contract has been awarded to A. A. Smith, Mt. Pleasant, Tenn., at $14,000, for building 3½ miles of turnpike between Brownville and Rhoda.

Louisiana

Notes from Louisiana

By the Byrons, Hennan Bldg., New Orleans

This office has a list of names of all classes of excavating machinery operators that can be recommended very highly. We will be glad to serve our contractor friends.

S. M. Spooner is operating an 18-B Bucyrus shovel for H. C. Gass at San Antonio, Texas on some sewer work. Mr. Spooner advises that they have about four more weeks of work to do with the shovel.

F. B. Black is operating a 60-C Bucyrus shovel for the Morrow Construction Co. on their Southern Railway work near Greer, S. C., Mr. Black reports that the shovel is doing great work.

Edgar Chapman of Plant City, Fla., was awarded contract for constructing main canal and nine laterals for the Gamble Creek Drainage District. This contract consists of about 1,340,096 yards. About 400,000 yards of the work is suited to a dragline machine, the balance being dredge work. The above companys price on this work was .0839 per cubic yard.

The H. B. Blanks Levee Co. of Vicksburg advise that they expect to start their 6-yard Bucyrus cableway machine by October 1st. This machine will be watched very carefully by many of the contractors along the river owing to it being a new method of building levees.

The United States engineers office at New Orleans will let on September 28, about 1,093,400 yards levee work in the lower Texas and Atchafalaya Levee districts. This is all dragline work.

The Lower Coast Construction Co. of New Orleans was awarded about 500,000 yards of levee work on the Red River. Their price being .0963.

St. Patricks P. O.—J. S. Whitley has resumed his old position as superintendent and master mechanic for Don B. Hearin & Son, formerly known as Hearin & Ryan.

Port Allen—Contract has been awarded to S. A. Gano, Jackson, Miss., at $37,735, for constructing 27 miles of road.

New Orleans—Contract for constructing sand-clay gravel road, 1 mile long and 16 feet wide, metal surface, has been awarded to W. E. Geren, Lafayette, La., at $2,031.

New Orleans—Contract for constructing various levees have been awarded as follows: Mill Bayou to Simmsport Levee, right bank, new levee and riverside enlargment, about 350,000 cubic yards, to Lower Coast Construction Co., at 9.34 cents per cubic yard; Boston Road Crossing Levee, riverside enlargement, about 31,000 cubic yards, to Burt, Bond & McMurray, at 37 cents per cubic yard, and Cross Levee, about 300,000 cubic yards, to R. F. Clark, at 25 cents per cubic yard.

New Orleans—Contract for a grading road 8.1 miles long and 60 feet wide has been awarded to W. E. Geren, Lafayette, La., at $14,900. Will include 50,000 cubic yards earthwork and concrete bridges and culverts.

Lake Charles—The Texas Grading Co., has been awarded a contract by the Police Jury to grade the highway south of Vinton, for a distance of 6 miles for $16,882. W. M. McCorquodale of Lake Charles will construct similar improvements on the road south of Sulphur for $14,200.

Minnesota

News from the Twin Cities

By Clapp, Nostrom & Riley, St. Paul

Winston Bros. Co., Globe Bldg., Minneapolis, were recently awarded a government irrigation contract in Wyoming, approximately 650,000 cubic yards, consisting of dragline and team work. They are not yet ready to sublet any of the work.

C. E. Sandeen reports that his work at Smithville, Minn. will be finished at the end of this month. He has had considerable rain to contend with which, of course, has delayed his work.

J. B. Arpin of Grand Rapids, Wis. was recently awarded contract for Judicial Ditch 61 about 2½ million yards of dredging. Judicial Ditch 62 containing about an equal number of yardage will be let in about six weeks.

There is no doubt but that the Union Depot Company will, in the next 30 days be asking for bids again for the new Union Depot project for which bids were asked early this summer and later cancelled, on account of the government engineers not accepting the depot company's plans for changing the river. W. C. Armstrong, St. Paul, is chief engineer.

Siems-Carey Company who had the track laying and surfacing of the Northern Pacific branch, Beach, N. D., and which work they sublet to Fedders Bros. of this city, advise that the work is now finished and the trains are running. This opens up a new country where up to this time the settlers had to freight their wheat 30 to 40 miles to the nearest railroad station.

Siems-Carey Company were today awarded by the City of St. Paul, a $100,000 sewer contract on which they intend to make an early start.

Winsted—The Electric Short Line has awarded the contract for building the extension from Winsted, Minn., west to Hutchinson, 45 miles, to H. F. Balch & Co., Minneapolis.

Missouri

Hannibal—P. W. Hanks is operating an 85-C Bucyrus shovel for the Atlas Portland Cement Company, here. The shovel has been on double-shift for 18 months and has been giving splendid service. Mr. Hanks is running the day shift.

St. Louis and Vicinity

By A. C. Esser

F. A. Grant of this city has made fine progress on a large cellar excavating contract at Grand and Chouteau Aves., for the Pevely Dairy Co. This work is averaged at about 20,000 cubic yards. He expects with favorable weather conditions to complete in approximately thirty days.

G. A. Heman, who has had several large street paving contracts for the past two years at Salt Lake City, Utah, has been awarded recently several large street paving contracts in this city, aggregating $125,000. He is shipping part of his outfit back to St. Louis, preparatory to start some of the grading before the winter season sets in.

John Keeley of East St. Louis who was recently awarded 800,000 cubic yards of levee work by the East St. Louis Levee & Sanitary District, advised that he has been temporarily delayed in starting this work, on account the slow progress being made in arranging for the detouring of the traffic from the M. & O. R. R. to the Terminal Association tracks. Mr. Keeley has arranged for a complete outfit, consisting of sixty 30-cubic yard all-steel air-brake and air-dump Western cars, and one Western standard-gauge spreader car. The Bucyrus Company sold him one 85-C Bucyrus shovel with a 4-yard dipper. He expects to have his work in full blast before the 1st of October.

By A. J. Michel

A. J. Michel, for many years at No. 9 South Ninth Street, St. Louis in the labor business has moved to 823 Market Street.

He has consolidated his business with that of Mr. Peter Raphael who for the past twenty years has been regarded the foremost and most upright Italian labor agent in St. Louis. Mr. Michel will conduct personally all white labor orders and shipments and Mr. Raphael the foreign orders. In this way the office can take care of more business and more promptly than heretofore. The firm is known as Raphael & Michel.

C. S. Jones has formed the company of Rodgers & Jones. They have just secured several miles of car work on the I. C. near Benton, Ill. which will keep them busy until Christmas. More work will come up on this line they state. They have purchased a car outfit, track, dinkeys, etc.

The River above and below St. Louis went down to 12 feet stage. Several river outfits started work at this stage only to be driven back and causing a shutdown of work by 23 feet stage last week.

S. H. Ginson secured a nice team contract near Columbus, Ohio this week. He will finish his present contract just in time to move on the new one.

Burt Thatcher, formerly chief clerk for the Michel Labor Agency has taken charge of S. H. Ginson's camp at Columbus, Ohio. He writes us that working conditions there are ideal and camp life agrees with him.

There is a shortage of white as well as foreign labor in St. Louis.

Without an exception every Railroad Co. running into St. Louis needs men for their various track gangs and get but few men. Within two weeks conditions should be relieved very noticeably.

Peter Raphael closed a contract this week to furnish 1000 foreigners for a southern line commencing October 1st.

The writer predicts plenty of work the coming winter. Prosperity seems to be here or not very far off.

The Eyerman Construction Co. secured a contract to pave Market Street from Broadway to 12th Street.

Montana

Polson—Mr. F. A. Mengel formerly night superintendent for Winston Bros. Co. on the Grand Valley Project, has recently accepted a position with the government here, on the Flat Head Project.

Fort Shaw—Following contracts for work on project have been awarded by U. S. Reclamation Service; earthwork to J. E. Hilton, Billings; structures to West Coast Construction Co., and to Hans Pederson, both of Seattle; wooden highway bridges to Threet Bros. & Jolley, Lovell, Wyoming.

Three Forks—A contract is reported awarded to Cliffton, Applegate & Co., Hutton Bldg., Spokane, Wash., for constructing the Radersburg Railroad, from Three Forks, to Radersburg, Mont., 25 miles.

Nebraska

Tekamah—The Burt-Washington Drainage District awarded 500,000 cubic yards of clean-cut work on October 2nd, suitable for dragline excavators or suction dredges. In addition to this, 300,000 cubic yards suitable to one or two dragline excavators.

North Carolina

Goldsboro—A contract has been awarded to A. V. Willis & Sons, Pittsfield, Ill., at $56,844 for dredging a canal 33½ miles long.

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Ohio

Cleveland—The Cleveland & Ohio Central Electric has let the contract for its first 55 miles of track from Cleveland, Ohio, to Wooster, to the Lathrop-Shea & Henwood Company, Buffalo, N. Y.

Toledo—Contract for constructing seven miles of road has been awarded to The Carrigan Bros. Co., Valentine Bldg., Toledo.

Oregon

Notes from the Northwest

By L. T. Russell, Portland

The Morrison & Daley dredge is running and is making a good showing on the Inter-County River Improvement near Tacoma, Wash.

Clarkson-Standifer Co. have finished the work on the Lower Columbia River Highway and have been allotted additional work amounting to some $50,000.00 because of good work done on the first job.

Paving of the Columbia River Highway and other roads in Multnomah County is about half completed.

We have had a pleasant visit in Spokane recently with Mr. Gust Carlson of Carlson & Chindahl who was as stout and happy as ever, but says he could do a lot more work than is coming his way.

A. Guthrie & Co. are making fine progress with the irrigation job they recently started near Oroville, Washington.

Work on the new road on the east bank of the Sandy River is progressing in good shape and is being done by force account under road master Yeon.

Surveying parties are out and right of way is being secured on the road to be built from Roseburg to Rock Creek. Kendall Bros. and A. Welch of Portland are interested.

Business has somewhat improved throughout the northwest according to opinions of a number of people engaged in general construction.

J. A. McEachern & Company of Seattle have opened an office at 607 Pittock Block, Portland, Oregon. Their line is building docks, trestles and similar structures.

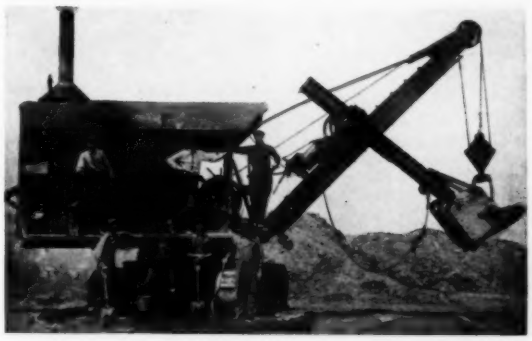
Considerable interest is being taken in placer mining throughout the northwest. The seven-foot dredge of the Powder River Gold Dredging Company is nearly completed and Mr. Walter Burrell of Portland, Oregon, is installing a five-foot dredge at John Day, Oregon.

Salem—The State Highway Commission has authorized the expenditure of $30,000 of state funds on Columbia River highway in Columbia County at Rainier Hill, and the county will appropriate an additional amount sufficient to put road in good condition. Contract for work has been awarded to Standifer-Clarkson Co., Portland, Oregon.

South Carolina

Greenville—The Southern Railway Co. has awarded the following contracts for double-track including masonry, concrete and other work, Greenville to Easley to H. J. Dunavant & Co., Knoxville, Tenn., 11 miles in all; Easley to Central, 15 miles to M. M. Elkan, Macon, Ga.

Charleston—The Seaboard Air Line Railway has awarded contract to W. Z. Williams & Co., Fourth National Bank Bldg., Macon, Ga., for filling in trestle work on its new line between Charleston and Savannah.



The Crew of Howard P. Dawson's 18-B Bucyrus Digging Streets near Pittsburgh, Pa. L. E. Brubaker, engineer, R. J. Brubaker, Cranesman and Carl Rickard, Fireman.

South Dakota

Newell—Contract for constructing the North Canal extensions and laterals has been awarded to Curtis Bros., Columbus, Nebr., at $8,075. This will require 64,600 cubic yards excavation.

Tennessee

Harriman—The Morgan-Fentress Railway, operating from Nemo to Mantrin, Tenn., 13 miles, has let contract to Cumberland Construction Co., of Harriman, for an extension of about 13 miles. The railroad is projected to Jamestown, Tenn., 56 miles from Nemo.

Utah

Bingham—John J. Tooley is working on a Bucyrus shovel for the Utah Copper Company at Bingham Canyon.

Wisconsin

South Milwaukee—The Bucyrus Company has sent four men to the military training camp for business men now in full swing at Ft. Sheridan, Ill. These men have been granted leave of absence with full pay and their expenses will be paid by the Company.

West Virginia

Mullens—According to press reports work has begun on a 60-mile extension of the Virginian Railway from Mullens to Man, W. Va., piercing the state's richest coal territory in Wyoming county. The line for the first time will connect the Virginian with the main Guyan River, the ultimate plan, it is said, being an extension to Huntington to give a new lake as well as tidewater outlet.

PROSPECTIVE · CONSTRUCTION

Arkansas

Bids will be received until October 6th by the Cook Slough Drainage District, for about 164,000 cubic yards of main ditch and 81,000 cubic yards lateral excavation in Swinton. W. A. Bowman, engineer, Remmel, Ark.

Hugh R. Carter, state highway engineer, has completed plans for the proposed 25 mile macadam road, between Eureka Springs and Seligman.

The Atchison, Topeka & Santa Fe will build a branch, it is said, from Seligman, Ariz., south into the Bagdad country and the Hillside mining district. The Bagdad Copper Company has been carrying on extensive development work in the Hillside district and the new branch is to be built to provide an outlet for ore from the company's mines.

California

The Oakland Antioch & Eastern Railway are planning to extend its line to Martinez. H. A. Mitchell, secretary and general manager, San Francisco, may be addressed.

The formation of the irrigation district in the vicinity of Thermalito has been proposed. The district will contain about 2000 acres. L. Van der Naillen, manager of Oro Electric Corporation, is interested.

Canada

It has been decided by the council of Esquimalt, B. C. that Silkirk Ave. be lengthened, so that it will extend to the Gorge. An 18-foot road will be made, and tenders are to be called for its construction.

Through an arrangement with the Canadian and British Columbia governments the Pacific Great Eastern Railway Company has secured funds to continue construction work on its line between Vancouver, B. C., and Fort George. The line is now in operation out of North Vancouver towards Squamish, and from Squamish to Lillooet, 120 miles. Considerable work has been done between Lillooet and Fort George, and the company espects to have 100 miles additional completed during 1915.

Outlines of a plan involving millions, for joint passenger and freight terminals on Burrard Inlet Vancouver, between Main Street and Heatley Ave., with tunnels to False Creek yards, and an electric line between Vancouver and Seattle were laid before the civic bridges and railways committee by Mr. A. P. Gillies and Mr. E. G. Matheson, engineers. The company promoting the local scheme and a similar one in Seattle, is called the International Union Terminals Limited, and has as its president, Mr. John C. Eden of Seattle.

Illinois

Bids will be received until 1 P. M. October 14, by commisioners of Meredosia Levee and Drainage district for excavating and cleaning out about 86,960 cubic yards of earth for about 6½ miles of drainage ditch. Plans may be obtained at Albany State Bank, Albany. Andrew Dolan, commissioner.

Indiana

The Erie Railroad is stated to have allotted $2,000,000 for double-track work and elimination of surface crossing in Porter County. A considerable part of this sum will be spent between Griffith and Lomax.

Iowa

The Greenbay Levee & Drainage District of Lee County, Iowa, is proposing a levee and drainage development project to cost $350,000 and calling for 1,412,240 cubic yards of embankment and 419,000 cubic yards of ditch excavation. The work is for the protection of reclaimed land. The plan provides for the construction of levees which will have a crown of 5 feet and a slope of four to one. A diversion channel with a bottom width of not more than 30 feet, the material excavated from which, will be used in constructing the levee. In addition to this, there is a system of main and lateral ditches, tile drains, and pumping machines. E. T. Perkins of Chicago is chief engineer of the district.

J. N. Hughes Co., Aud., Bedford, Iowa, will receive bids until October 15th for constructing a new channel for the East Nodaway River. This will be 37,622 feet long and require 365,000 cubic yards excavation.

Kentucky

The Louisville & Nashville Railroad is reported surveying for a branch from Ermine, Ky., along Colly Creek, six miles, to coal and timber tracts.

Maryland

It is stated that the Baltimore & Ohio will build a line from its Hagerstown branch, Maryland, to the plant of the Security Cement Company, about four miles, that the plans have not yet been completed, but the company expects to decide upon this work soon.

Mississippi

Washington County contemplates improving about 125 miles road at an estimated cost of $750,000. Bonds have not been issued. C. R. Cock, road commissioner, Greenville.

Missouri

Contract for constructing 10.8 miles levee work planned for protection of 5,400 acres of land near Birmingham, Mo., will be let some time in November or December by John H. Powell, secretary, Birmingham Drainage District, 312 Reliance Bldg., Kansas City, Mo.

It is probable that contract will be awarded soon by the drainage commissioners of the Sugar Tree Drainage District, E. H. Quisenberry, Carrollton, Mo., clerk, for dredging about 16 miles open ditch.

Montana

The Great Falls & Southwestern Railway has been incorporated to build a railroad from Ulm to Hound Creek, east of Great Falls, a distance of about 60 miles.

UMI

North Carolina

The Watauga & Yadkin River Railroad, it is said, has completed grade and laid track to within one mile of Darby, N. C., and will probably complete to there by October 1, three small bridges remaining to be built. A report says the road may build an extension to Blowing Rock 15 miles, or to Boone, 18 miles.

Ohio

It is being planned by the Lake Shore Electric Railway Co., Cleveland, Ohio, to construct a cut-off between Toledo and Cleveland, which will shorten the distance between above places by five miles.

Adams & Sturm, of Columbus, Ohio, may finance and build the projected Atlanta-Carolina Electric Ry., from Atlanta to Augusta, Ga., about 180 miles. R. E. Church, of Atlanta, is receiver for the road, on which some work has been done. Burton Smith, Third National Bank Bldg., Atlanta, and Philip Alston are attorneys for the bondholders and receiver. An option on the property may be given if the court approves.

Oregon

The construction of a railroad to Umpqua National forest, which is to be built jointly by the City of Roseburg, Oregon, and by Kendall Bros., Pittsburgh, Pa., will commence soon. C. L. Selecman is local representative.

South Dakota

It is stated that the Great Northern Railway is planning a railroad from Sioux Falls, So. Dakota to Denver, Colo. Further information may be obtained from A. G. Hogaland, chief engineer, St. Paul, Minn.

Work on constructing a proposed railway to connect Huron, So. Dakota, and Hankinson, No. Dakota, will be started soon by Huron & Northwestern Railway. F. W. Henderson, Summit, So. Dakota, is intersted in this work.

Tennessee

The Morgan Engineering Company, of Memphis, Tenn., have received notice of their appointment as engineers on the Upper Scioto Drainage & Conservancy District in Hardin County, Ohio. The work will consist of the preparation of plans for the protection of about 25,000 acres of valuable truck land, and for a portion of the city of Kenton, Ohio. This territory was recently visited by floods which did an immeasureable amount of damage. It is planned to begin the field surveys at once, in order that contracts for construction may be let during the coming winter.

Bids will be received until October 8, by J. H. Morrison, chairman, county commissioners, Tazewell, Tenn., for macadamizing 12 miles of Cumberland Gap-Tazewell road, and 8 miles of Powell Valley road, also for grading 28 miles of road.

Washington

The Oregon Washington Railroad & Navigation Company are planning a railroad at a cost of $500,000 between the Port Defiance Line and Olympia. Further information may be obtained from J. R. Holman, chief engineer, Portland, Oregon.

The State highway commission, Olympia, will receive bids until October 11, for grading, draining, and surfacing seven miles of highway between Waitsburg and Dayton, and gravel-surfacing 17 miles of highway between Colfax and Rosalia.

A bond issue of $500,000 has been authorized in Wenatchee reclamation district for the purchase of canal and extensions.

West Virginia

Preliminary survey has been made for the construction of a line by the Monongahela Valley Traction Co., from Weston to Glenville, W. Va., about 25 miles, but work has not been decided upon. Between Clarksburg and Salem, W. Va., surveys have been completed and locations made for an extension of about seven miles of the six-mile line now operating from Clarksburg to O'Neil. Rights of way have been promised, but have not yet been secured.

Wisconsin

It is reported at Madison that the Minneapolis, St. Paul, Sault St. Marie Railroad will take steps in the near future for extending its branch line now running between Stevens Point and Portage to join the main line south of Milwaukee and possibly to include Madison.

Wyoming

The U. S. Reclamation Service, Powell, Wyo., will open bids on October 20th for canal excavation and structures on the Shoshone project. The excavation amounts to 560,000 cubic yards.

TRADE NOTES

Some two years ago through the purchase of an air compressor the superintendent of the France Company of Middlepoint, Ohio, had his first experience with a McCord force feed lubricator. After several months operation, in which the McCord lubricator showed a saving of 25% to 40% of oil plus other advantages of an unusual nature, it was decided to extend the use of the McCord lubricator to three large shovels. Following repeated expressions of preference for the McCord lubricator from the shovel engineers over any other lubricating device they had ever used, a McCord was applied to one of their locomotives. So satisfactory has been the performance of the McCord lubricator on the equipment to date that it is the intention of this concern to install McCord Type "B A" lubricators on all of their shovels and locomotives.

Operators of contracting machinery, desiring to obtain specific and practical information on economic lubrication, are invited to consult, without obligation, the Engineering Service Department of the McCord Manufacturing Co., Detroit, Mich.

The Baldwin Locomotive Works of Philadelphia, report the sale of one 4-wheeled switcher to the Crane Iron Works, and also two 4-wheeled switchers to the General Chemical Company.

The Davenport Locomotive Works recently sold an 8 by 12, 10-ton, 42 inch gage saddle-tank locomotive to the Sherwood-Lester Coal Company of Mobile, Mo. They also made shipment recently of a 6 by 10, 4-wheeled connected asddle-tank locomotive weighing 7½ tons in working order, to the Alko-Nak Coal Mining Company of Henryetta, Okla.

The Hayden-Corbett Chain Company of Columbus, Ohio, report a heavy demand throughout the year for their Old Reliable XX hoisting chains, and a heavy demand for the later summer season which is unusual. The fact that the demand for hoisting chains has improved while construction business on the whole has been more or less at a stand sill, is a good indication of the character of the chain.

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"Double Quick" Trench Filler

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For Backfilling, Light Hoisting, Hauling Overground, Loading and Unloading, Placing Pipe in Trenches—the hundred odd uses where instantly available power speeds up the job. No limit to its utility. Costs no more than a good team—eats nothing when not working. Send for full details.

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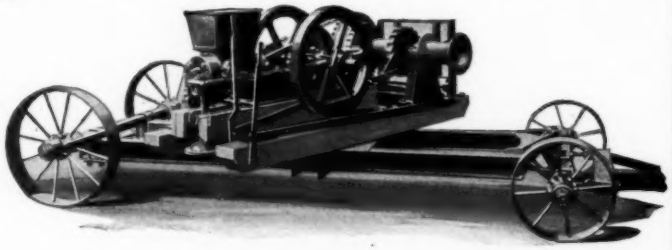
WM. A. HANSELL, Jr
Supt. Public Works."



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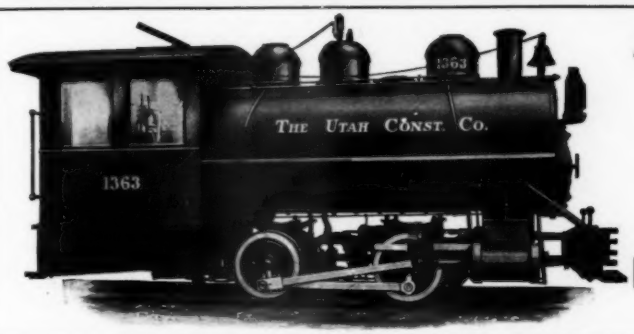

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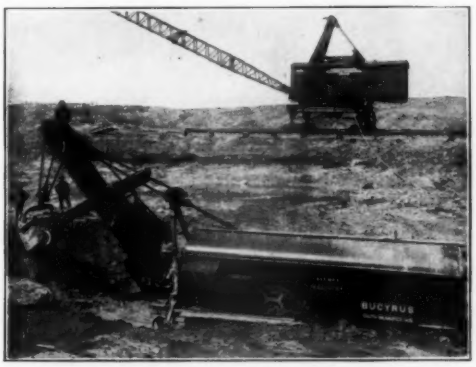

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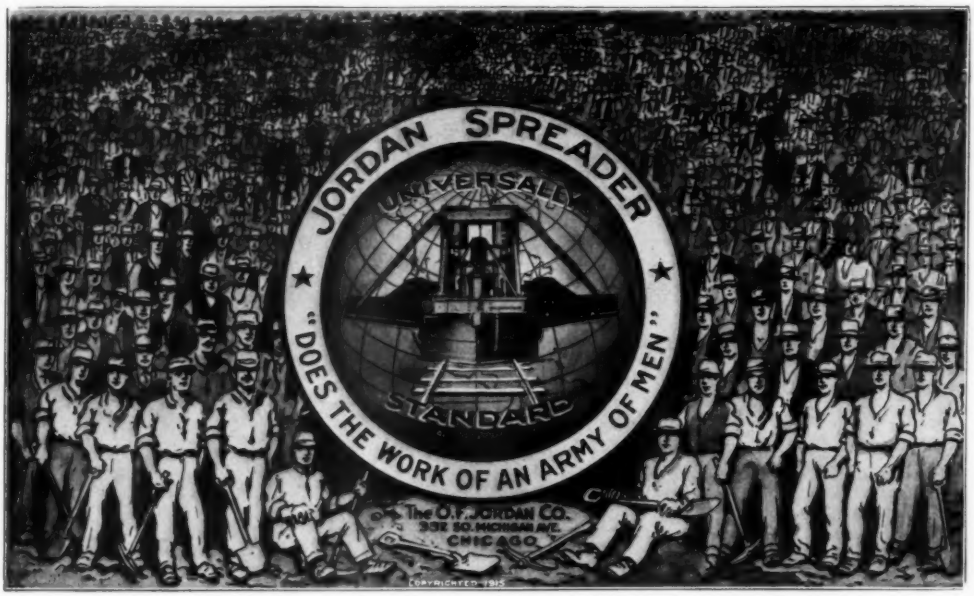

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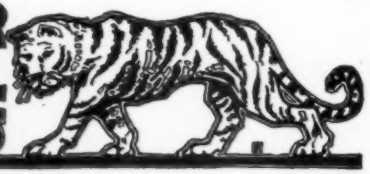

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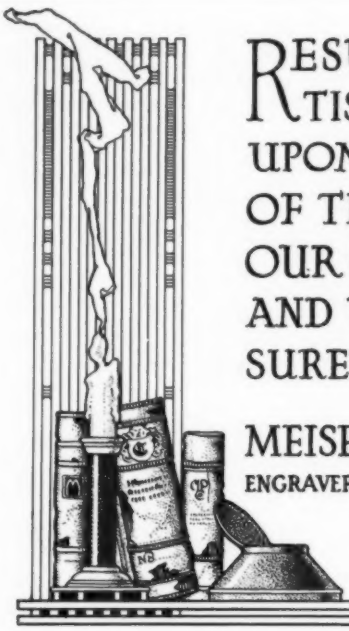

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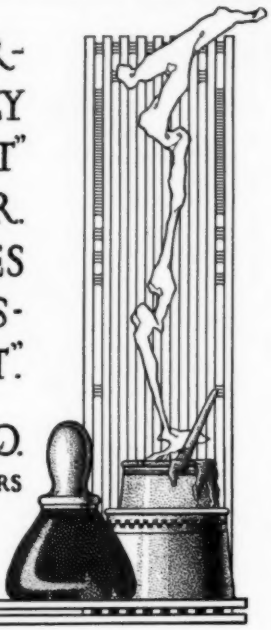

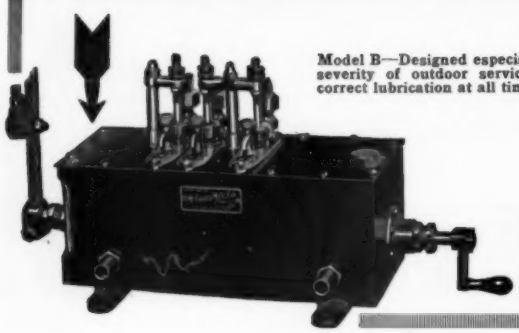

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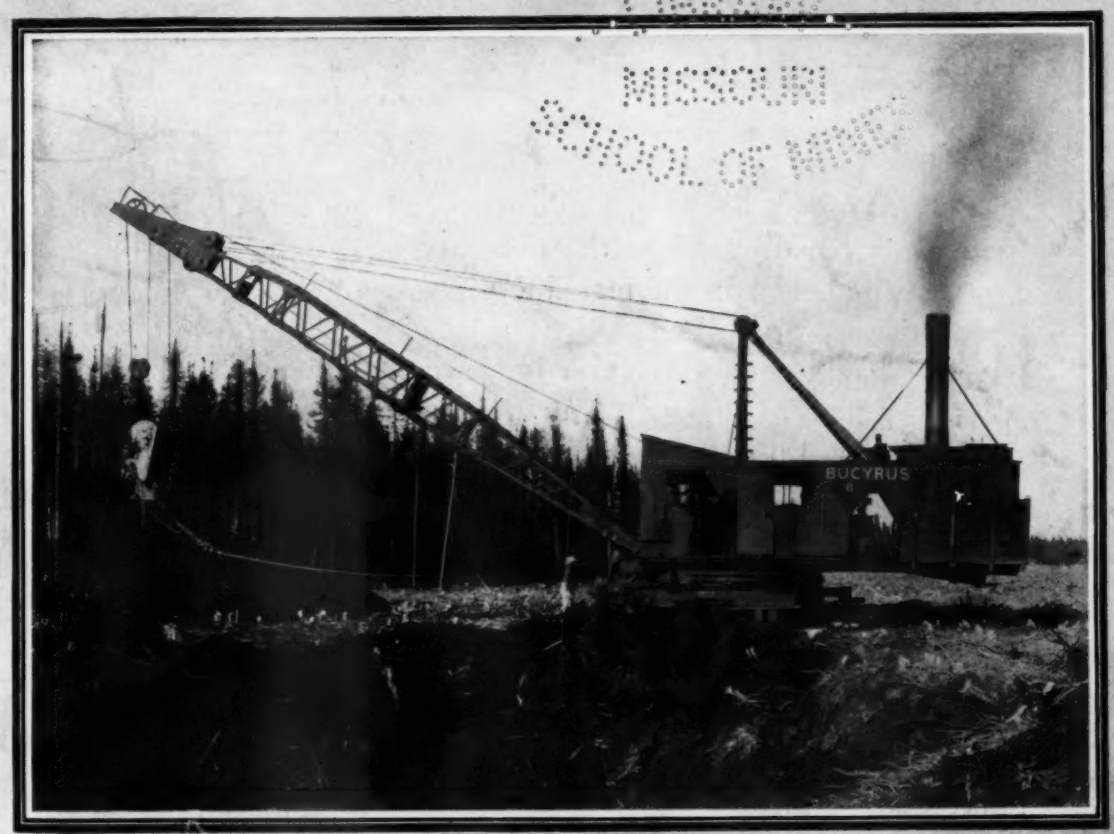

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